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SECRETARY OF THE AIR FORCE**



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Flying Operations

KC-10 OPERATIONS PROCEDURES

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This volume implements AFD 11-2, *Aircraft Rules and Procedures*. It establishes policy for the operation of KC-10 aircraft to safely and successfully accomplish their worldwide mobility missions. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force. This instruction applies to the Air Force Reserve Command (AFRC). This publication does not apply to the Air National Guard (ANG).

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Chapter 1—GENERAL INFORMATION	14
1.1. General.	14
1.2. Applicability.	14
1.3. Key Words Explained.	14
1.4. Deviations and Waivers.	14
1.5. Supplements.	15
1.6. Requisition and Distribution Procedures.	15
1.7. Improvement Recommendations.	15
1.8. Definitions.	15
1.9. Aircrew Operational Reports.	15
 Chapter 2—COMMAND AND CONTROL	 16
2.1. General.	16
2.2. Execution Authority.	16
2.3. Aircraft Commander Responsibility and Authority.	16
2.4. Mission Clearance Decision.	17
2.5. Aircrew Responsibilities.	17
2.6. Operational C2 Reporting.	17
2.7. Mission Commanders.	21
2.8. DUAL ROLE Procedures.	22
2.9. C2 Agency Telephone Numbers.	23
2.10. Close Watch Missions.	23
 Chapter 3—CREW MANAGEMENT	 24
3.1. Aircrew Qualification.	24
3.2. Crew Complement.	25
Table 3.1. KC-10 Crew Complement.	25
3.3. Scheduling Restrictions.	25
3.4. Alerting Procedures.	26
3.5. Stage Management.	27
3.6. Crew Duty Time (CDT) and Flight Duty Period (FDP).	28
3.7. Crew Rest.	30
3.8. Standby Force Duty.	32
3.9. Orientation Flights and Incentive Flights.	33

Chapter 4—AIRCRAFT OPERATING RESTRICTIONS	34
4.1. Objective.	34
4.2. Policy.	34
4.3. Waiver Protocol.	35
4.4. Technical Assistance Service.	35
4.5. Not Used.	35
4.6. Two-Engine Ferry Operations.	35
4.7. Gear Down Flight Operations.	36
4.8. Fuel System Limitations.	36
4.9. High-Speed Taxi Checks.	36
4.10. Slat Profile Flights.	36
 Chapter 5—OPERATIONAL PROCEDURES	 38
5.1. Checklists.	38
5.2. Duty Station.	38
5.3. Flight Station Entry.	38
5.4. Takeoff and Landing Policy.	38
5.5. Not used.	38
5.6. Outside Observer.	38
5.7. Seat Belts.	38
5.8. Aircraft Lighting.	39
5.9. Portable Electronic Devices.	39
5.10. Smoking Restrictions.	39
5.11. Advisory Calls.	39
5.12. Communications Policy.	39
5.13. Transportation of Pets.	40
5.14. Alcoholic Beverages.	40
5.15. Runway, Taxiway, and Airfield Requirements.	40
Table 5.1. Minimum Runway and Taxiway Requirements.	40
5.16. Aircraft Taxi Obstruction Clearance Criteria and Foreign Object Damage (FOD) Avoidance.	41
5.17. Fuel Requirements.	42
5.18. Fuel Jettison Procedures.	43

5.19.	Airspeed.	43
5.20.	Bird Aircraft Strike Hazard (BASH) Programs.	43
5.21.	Functional Check Flights (FCF) and Acceptance Check Flights (ACF).	44
5.22.	Participation in Aerial Events.	45
5.23.	Not Used.	45
5.24.	Aircraft Recovery From Unprepared Surfaces.	46

Chapter 6—AIRCREW PROCEDURES

47

Section 6A	Pre-mission.	47
6.1.	Aircrew Uniform.	47
6.2.	Personal Requirements.	47
6.3.	Pre-mission Actions.	48
6.4.	Aircrew Publications Requirements.	49
Table 6.1.	Publication Requirements.	49
Section 6B	Pre-departure.	50
6.5.	Airfield Certification.	50
6.6.	Aircrew Intelligence Briefing.	50
6.7.	Flight Crew Information File (FCIF) Procedures.	50
6.8.	Flight Crew Bulletins (FCB).	51
6.9.	Airfield Security.	51
6.10.	Mission Kits.	51
6.11.	Route Navigation Kits.	52
Table 6.2.	Minimum Contents of Route Navigation Kit.	53
6.12.	Briefing Requirements.	53
6.13.	Call Signs.	55
6.14.	Instrument Flight Rules.	56
6.15.	Flight Plan Verification.	56
6.16.	Departure Planning.	57
6.17.	Obstacle Clearance Planning.	60
6.18.	Alternate Planning.	63
6.19.	Departure Alternates.	63
6.20.	Destination Requirements (<i>for filing purposes</i>).	64
6.21.	Adverse Weather.	65
6.22.	Fuel Conservation.	66

Section 6C	Preflight.	67
6.23.	AFTO Form 781, AFORMS Aircrew/Mission Flight Data Document .	67
6.24.	Aircraft Servicing and Ground Operations.	67
6.25.	Aircraft Recovery Away from Main Operating Base (MOB).	68
6.26.	Oxygen Requirements.	69
6.27.	Fleet Service Equipment.	69
6.28.	Cargo Documentation.	69
6.29.	Procedures for Airlifting Hazardous Cargo.	69
6.30.	Handling of Classified Cargo, Registered Mail, NMCS/VVIP/FSS Shipments, and Courier Material.	73
Section 6D	Departure.	73
6.31.	On Time Takeoffs.	73
6.32.	Weather Minimums For Takeoff.	74
Table 6.3.	Weather Minimums for Takeoff.	74
Section 6E	En route.	74
6.33.	Flight Progress.	74
6.34.	Navigational Aid Capability.	76
6.35.	Communications Instructions Reporting Vital Intelligence Sightings (CIRVIS) and Other Reports.	78
6.36.	In-Flight Meals.	78
6.37.	Communications.	78
6.38.	In-Flight Emergency Procedures.	79
6.39.	Need for Medical Assistance.	79
6.40.	Weather Forecasts.	80
Section 6F	Arrival.	80
6.41.	Descent.	80
6.42.	Instrument Approach Procedures.	80
6.43.	Classified Equipment and Material.	82
Table 6.4.	Sector Operations Centers (SOCCs).	83
6.44.	Unscheduled Landings.	83
6.45.	Maintenance.	84
6.46.	Border Clearance.	84
6.47.	Insect and Pest Control.	86

Section 6G	Miscellaneous.	87
6.48.	Dropped Object Prevention.	87
6.49.	Cockpit Voice Recorder (CVR).	87
6.50.	Life Support and Dash 21 Equipment Documentation.	87
6.51.	Passenger Restrictions.	88
Table 6.5.	Personnel / Lavatory Requirements.	88
6.52.	Use of Forward Entry Ladder.	89
6.53.	No Show Passenger Baggage.	89
6.54.	Airfield Data Reports.	89
6.55.	Impoundment of Aircraft.	89

Chapter 7—AIRCRAFT SECURITY 90

7.1.	General.	90
7.2.	Security.	90
7.3.	Air Force Physical Security Program.	90
7.4.	En Route Security.	90
7.5.	Detecting Unauthorized Entry.	91
7.6.	Preventing and Resisting Hijacking.	92
7.7.	Preventive Measures.	93
7.8.	Initial Response.	93
7.9.	In-Flight Resistance.	94
7.10.	Communications Between Aircrew and Ground Agencies.	94
7.11.	Forced Penetration of Unfriendly Airspace.	95
7.12.	Arming of Crew members.	96
7.13.	Force Protection.	96
7.14.	Protecting Classified Material on Aircraft.	98

Chapter 8—OPERATIONAL REPORTS AND FORMS 99

8.1.	General.	99
8.2.	AF Form 457, USAF Hazard Report .	99
8.3.	AF Form 651, Hazardous Air Traffic Report (HATR) .	99
8.4.	AMC Form 97, AMC In-Flight emergency and Unusual Occurrence Worksheet .	100
8.5.	Reports of Violations/Unusual Events or Circumstances.	101
8.6.	Petroleum, Oil, and Lubricants (POL)—Aviation Fuels Documentation.	102
8.7.	AMC Form 54, Aircraft Commander's Report on Services/Facilities .	106

8.8.	AMC Form 43, AMC Transient Aircrew Comments.	107
8.9.	AMC Form 196, Aircraft Commander's Report on Crew Members.	107
8.10.	AMC Form 423, MIJI (Meaconing, Intrusion, Jamming, Interference) Incident Report Worksheet.	107
8.11.	AF Form 3578, Tanker Activity Report (TKACT).	107

Chapter 9—TRAINING POLICY 108

9.1.	Qualification Training.	108
9.2.	Flight Maneuvers.	108
9.3.	Touch and Go Landing Limitations.	108
9.4.	Not Used.	109
9.5.	Not Used.	109
9.6.	Operating Limitations.	109
9.7.	Landing Limitations.	110
9.8.	Prohibited In-Flight Maneuvers.	110
9.9.	Training / Evaluation Briefing.	110
9.10.	Debriefing.	110
9.11.	Simulated Instrument Flight.	110

Chapter 10—LOCAL PROCEDURES 111

10.1.	Units define local operations procedures in this chapter.	111
-------	---	-----

Chapter 11—INTENTIONALLY LEFT BLANK 112

11.1.	This chapter not used for KC-10 operations.	112
-------	---	-----

Chapter 12—FLIGHT ENGINEER PROCEDURES AND FORMS 113

12.1.	General.	113
12.2.	Responsibilities.	113
12.3.	Authority to Clear Red X Symbols.	113
12.4.	Aircraft Servicing.	113
12.5.	Engine Performance Monitoring.	113
12.6.	Aircraft Structural Integrity Program.	116
12.7.	Not used.	116
12.8.	Performance Data Computations.	116
12.9.	General Navigation Duties.	116
12.10.	Mission Planning.	116

12.11.	In-Flight Troubleshooting.	120
12.12.	Not Used.	120
12.13.	Auxiliary Power Unit (APU) Usage.	121
12.14.	Slip Stick.	121
12.15.	Center of Gravity (CG) Computations.	121
12.16.	Fixed Flap Takeoffs.	121
12.17.	Runway Slope Calculations.	121

Chapter 13—BOOM OPERATOR PROCEDURES 122

13.1.	General.	122
13.2.	Responsibilities for Aircraft Loading.	122
13.3.	Emergency Exits and Safety Aisles.	123
13.4.	Preflight Duties.	123
13.5.	Passenger Handling.	125
13.6.	Over-Packed Meal Procedures.	127
13.7.	En Route and Post Flight Duties.	127
13.8.	Emergency Airlift of Personnel.	128
13.9.	Rucksacks.	128
13.10.	Loaded Weapons.	128
13.11.	Cargo Validation On-loading and Off-loading Procedures.	128
13.12.	Border Clearance.	128
13.13.	Operational Forms for Boom Operators.	129
13.14.	Joint Task Force/C2 Module.	129

Chapter 14—INTENTIONALLY LEFT BLANK 130

14.1.	This chapter not used for KC-10 operations.	130
-------	--	-----

Chapter 15—AIR REFUELING 131

15.1.	AR Limitations.	131
15.2.	Low Altitude AR (LAAR).	132
15.3.	Emergency AR.	133
15.4.	Tanker Aircraft Commander Responsibilities.	133
15.5.	Receiver Aircraft Commander Responsibilities.	134
15.6.	ATC Clearance.	134

15.7.	Communications Failure.	135
15.8.	MARSA Applicability for Aerial Refueling.	135
15.9.	Coronet East Mission Over Flights in France.	135
15.10.	Refueling with Foreign Aircraft.	136
Chapter 16—	MISSION PLANNING	138
16.1.	General.	138
16.2.	Mission Planning.	138
16.3.	Agency Briefing (if applicable).	138
16.4.	Crew Mission Study and Detailed Flight Planning.	139
16.5.	Aircraft Commander Briefing.	139
16.6.	Specialized Briefing.	139
16.7.	Weather Briefing.	140
16.8.	Post Mission Debriefing.	140
Chapter 17—	EMPLOYMENT	141
17.1.	General.	141
17.2.	Responsibilities.	141
17.3.	Tactics Simulator Training.	141
17.4.	Tactics Flight Training.	142
Table 17.1.	Flight Training Limitations.	143
17.5.	Exercises.	146
Figure 17.1.	VFR Overhead Pattern.	148
Figure 17.2.	Random Steep Approach.	149
Figure 17.3.	Curvilinear Approach.	149
Figure 17.4.	Spiral-Up Departure.	150
Chapter 18—	AIRCRAFT FORMATION	151
Section 18A	General.	151
18.1.	Scope.	151
18.2.	Concept.	151
18.3.	Safety.	151
18.4.	Key Definitions.	151
18.5.	Responsibilities.	152
18.6.	Communications and Radio Procedures.	153
Table 18.1.	Standardized Radio Calls.	155
18.7.	Supplementary Information.	156

Section 18B	Formation.	156
18.8.	General.	156
18.9.	Launch, Departure, and Level-Off.	157
Table 18.2.	Minimum Formation Interval Chart.	158
18.10.	En Route Formation.	161
18.11.	Mid-Mission Join-Ups.	162
18.12.	Formation Position Changes (see Figure 18.2. and Figure 18.3.).	163
Figure 18.1.	Visual Station-Keeping Techniques.	165
Figure 18.2.	Formation Position Change—Any Aircraft Moves to Lead.	165
Figure 18.3.	Formation Position Change—Any Aircraft Moves to Trail.	166
18.13.	Echelon Formation.	167
18.14.	Air Refueling.	167
18.15.	Radar Failure.	169
18.16.	Complete Radio Failure.	169
18.17.	Lost Wingman Procedures.	169
18.18.	Formation Break-Up and Recovery.	171
18.19.	Mixed Formations.	171
18.20.	Mission Debriefing and Critique.	172

Chapter 19—INTENTIONALLY LEFT BLANK **173**

19.1.	This chapter is not used for KC-10 operations.	173
-------	---	-----

Chapter 20—AEROMEDICAL EVACUATION (AE) **174**

Section 20A	General Information.	174
20.1.	Mission.	174
20.2.	Not Used.	174
20.3.	Waivers and Revisions.	174
Section 20B	Aeromedical Evacuation Command and Control.	174
20.4.	Operational Control and Reporting of Aeromedical Evacuation Forces.	174
20.5.	Aircraft Commander Responsibilities.	174
20.6.	Flight Crew Responsibilities.	175
20.7.	Aeromedical Evacuation Crew Responsibilities.	175

20.8.	Patient Death In-Flight.	176
Section 20C Aeromedical Evacuation Crew Complement and Management.		176
20.9.	Aeromedical Evacuation Crew Complement.	176
20.10.	Aeromedical Evacuation Crew Management.	176
Section 20D - Aeromedical Evacuation Aircrew Procedures.		176
20.11.	Checklists.	176
Section 20E Aeromedical Evacuation Airlift Operations.		177
20.12.	General.	177
20.13.	En Route Diversions.	177
20.14.	Ground Operations.	178
20.15.	Refueling Operations.	178
20.16.	Aircraft Pressurization.	179
20.17.	Aircraft Configuration.	179
20.18.	Passengers and Cargo.	181
20.19.	Aircraft Rescue and Fire Fighting (ARFF).	182
20.20.	AE Call Sign and Use of Priority Clearance.	182
20.21.	Load Message.	182
20.22.	Change in Patient Status.	183
20.23.	Aerial Refueling (AR).	183
Chapter 21—INTENTIONALLY LEFT BLANK		184
21.1.	This chapter not used for KC-10 operations.	184
Chapter 22—INTENTIONALLY LEFT BLANK		185
22.1.	This chapter not used for KC-10 operations.	185
Chapter 23—AIRCREW CHEMICAL OPERATIONS AND PROCEDURES		186
23.1.	Wear of Aircrew Chemical Defense Ensemble (ACDE).	186
23.2.	Factors Influencing the Chemical Warfare (CW) Agent Hazard.	186
23.3.	Categories of Chemical Warfare Agents.	186
23.4.	Nerve Agents.	187
23.5.	Blister Agents.	187
23.6.	Choking Agents.	188

23.7.	Blood Agents.	188
23.8.	Aircrew Operations.	188
23.9.	Limitations.	189
23.10.	ACDE Issue.	190
23.11.	Operations in a Chemical-Biological Threat Area (CBTA).	190
23.12.	Donning Equipment.	191
23.13.	Ground Operations.	191
23.14.	Chemical Attack During Ground Operations.	192
23.15.	Crew Rest Procedures.	192
23.16.	Outbound with Actual/Suspected Chemical Contamination.	192
23.17.	Communicating Down-line Support.	192
23.18.	Contamination Control Areas (CCA) Procedures.	192
23.19.	Work Degradation Factors.	193
Table 23.1.	Task Time Multipliers.	193

Chapter 24—INTENTIONALLY LEFT BLANK **194**

24.1.	This chapter not used for KC-10 operations.	194
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Chapter 25—KC-10 CONFIGURATION **195**

25.1.	General.	195
25.2.	Applicability.	195
25.3.	Concept.	195
25.4.	Key Terms Explained.	195
25.5.	Aircraft Configuration.	195
25.6.	Configuration Procedures and Responsibilities.	196
25.7.	Aircraft Configuration Waivers.	196
25.8.	Permanent Aircraft Configuration Waivers.	197
25.9.	Responsibilities.	198
25.10.	Aircraft Maintenance.	199
25.11.	Deployed Personnel.	199
25.12.	Support Equipment.	200
25.13.	Maintenance IAU Responsibilities.	200
25.14.	Aircrew Life Support Equipment.	200

25.15.	Transportation.	200
25.16.	KC-10A Configuration Codes.	201
25.17.	KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirments.	203
Table 25.1.	KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirements.	203
25.18.	KC-10 Cargo Door Safety Net.	207
Table 25.2.	KC-10 Cargo Door Safety Net.	207
25.19.	Crew Chief On Board Parts Kit.	207
Table 25.3.	Crew Chief On Board Parts Kit.	208
25.20.	Forms Prescribed.	208

Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION	209
---	------------

Attachment 2—AF FORM 4091, MISSION DATA	222
--	------------

Attachment 3—FORMAT FOR VALIDATION OF CARGO ON-LOADING/OFF-LOADING PROCEDURES	223
--	------------

Attachment 4—AF FORM 4095, KC-10 LOAD PLAN WORKSHEET INSTRUCTIONS	224
--	------------

Attachment 5—AF FORM 4130, KC-10 RESTRAINT COMPUTATION WORKSHEET INSTRUCTIONS	226
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Attachment 6—FORMATION BRIEFING GUIDE	227
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Chapter 1

GENERAL INFORMATION

1.1. General.

1.1.1. This AFI provides guidelines for KC-10 operations and applies to KC-10 aircrews and all management levels concerned with operation of the KC-10. It is a compilation of information from aircraft flight manuals, FLIP publications, and other Air Force directives, as well as an original source document for many areas. Basic source directives have precedence in the case of any conflicts, revisions, and matters of interpretation. For those areas where this AFI is the source document, waiver authority will be in accordance with paragraph 1.4.1. For those areas where this AFI repeats information contained in other source documents, waiver authority will be in accordance with these source documents.

1.1.2. All units and agencies involved in or supporting KC-10 operations will use this AFI. Copies will be current and available to planning staffs from headquarters to aircrew level. Transportation and base operations passenger manifesting agencies will also maintain a copy of this AFI.

1.2. Applicability. This AFI is applicable to all individuals/units operating KC-10 aircraft.

1.3. Key Words Explained.

1.3.1. "Will" and "shall" indicate a mandatory requirement.

1.3.2. "Should" is normally used to indicate a preferred, but not mandatory, method of accomplishment.

1.3.3. "May" indicates an acceptable or suggested means of accomplishment.

1.3.4. "**NOTE**" indicates operating procedures, techniques, etc. that are considered essential to emphasize.

1.4. Deviations and Waivers. Do not deviate from the policies and guidance in this AFI under normal circumstances, except for safety, or when necessary to protect the crew or aircraft from a situation not covered by this AFI and immediate action is required. The aircraft commander is ultimate authority and responsible for the course-of-action to be taken. Report deviations or exception(s) without waiver through channels to MAJCOM Stan/Eval function whom, in turn, notifies lead command for follow-on action, if necessary.

1.4.1. Unless otherwise directed in this AFI, waiver authority for the contents of this document is the AMC/DO (lead-command). Request for a long-term (permanent) waiver must be approved by the user's MAJCOM before AMC review. Request for short-term waiver for missions under TACC operational control; send all waiver requests directly through the TACC. See **Chapter 4**, waiver protocol for additional information.

EXCEPTION: Contingency missions. Waiver authority for contingency missions will be listed in the OPOD/Tasking ORDER, etc., or the DIRMOBFOR (or equivalent) for the agency with C2 of the aircraft. Crewmembers may request additional information or confirmation from their home units, TACC, or MAJCOM/DO.

1.5. Supplements. This AFI is a basic directive. Each MAJCOM or operational theater may supplement this AFI. These supplements will not be less restrictive than the basic document. MAJCOM/DOs initiate long-term waiver requests to the basic document. Specify long-term waiver approval authority, date, and expiration date in the appropriate MAJCOM supplement. Limit supplement information to unique requirements only.

1.5.1. Combined Operations. Use only the basic AFI for planning or operations involving forces from lead and user commands. Commanders may use approved MAJCOM supplement procedures with assigned and/or chopped forces provided these forces receive appropriate training and the duration is specified. Commanders should not assume or expect aircrews from another command to perform MAJCOM specific procedures from their supplements unless these provisions are met. Questions by aircrews, planners, and staff should be forwarded to the OPR.

1.5.2. Coordination Process. Forward MAJCOM approved supplements (with attached AF Form 673, **Request To Issue Publication**) to HQ AMC/DOV, 402 Scott Dr., Unit 3A1, Scott AFB IL, 62225-5302. AMC/DOV will provide a recommendation to HQ AMC/DO and forward to HQ AFFSA/XOF for approval.

1.5.3. Prior to publication, units will send one copy of **Chapter 10** to the parent MAJCOM OPR for validation through their appropriate NAF for coordination. Send final copies to HQ AMC/DOV, parent MAJCOM, and the appropriate NAF.

1.6. Requisition and Distribution Procedures. Order this AFI through the servicing Publications Distribution Office (PDO). Unit commanders provide copies for all aircrew members and associated support personnel. This publication is available digitally on the SAF/AAD WWW site at <http://afpubs.hq.af.mil>. Contact your PDO for the monthly CD-ROM or access to the bulletin board system.

1.7. Improvement Recommendations. Send comments and suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through channels to HQ AMC/DOV, 402 Scott Drive Unit 3A1, Scott AFB IL, 62225-5302 (DSN 576-5080 according to AFI 11-215, *Flight Manual Procedures* and MAJCOM Supplement.

1.8. Definitions. The explanation or definition of terms and abbreviations commonly used in the aviation community can be found in FAR Part 1; *DoD FLIP General Planning*, Chapter 2; and Joint Pub 1-02, *The DoD Dictionary of Military and Associated Terms*. See **Attachment 1** for common terms.

1.9. Aircrew Operational Reports . The reporting requirements in this instruction are exempt from licensing in accordance with AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

Chapter 2

COMMAND AND CONTROL

2.1. General.

2.1.1. C2 of tanker and airlift forces is exercised through a network of C2 Centers. C2 Centers are executive agents for commanders exercising operational control over mobility forces. The C2 Center network consists of the AMC TACC, Theater Air Operations Centers (AOC), Air Mobility Elements (AME), Unit C2 Centers, Air Mobility Control Centers (AMCC), Tanker Airlift Control Elements (TALCE), Combat Control Teams (CCT), and the Pacific Air Force (PACAF) United States Air Forces in Europe (USAFE) Air Mobility Operation Control Centers (AMOCC).

2.2. Execution Authority. Execution approval will be received through the local command post or command element. The operations group commander will be the executing authority for local training missions. The aircraft commander will execute missions operating outside communications channels.

2.2.1. Supplemental Training Mission (STM). Opportune airlift of cargo and mission personnel may be accomplished as a by-product of crew training missions. STMs may be authorized when minor adjustments can be made to a scheduled training mission or when a productive aircrew training mission can be generated for the airlift. The training mission will not be degraded in any manner to accomplish the STM. Use of STMs for logistical support will be authorized only when normal military or commercial transportation modes are unable to provide required support. The operations group commander with wing commander coordination may approve STMs. On STMs aircraft commanders will release maximum number of space available seats commensurate with mission requirements and safety.

2.2.2. Off Station Training Flights (OSTF). Wing Commanders are the approval authority for off station trainers. Prior to approval, commanders will carefully review each proposed trainer's itinerary to ensure it justifies and represents the best avenue for meeting training requirements. Commanders approving off station trainers will forward a copy of the planned itinerary to the appropriate NAF/DO, MAJCOM/DOT, and TACC/XOB no later than 10 days prior to departure.

2.3. Aircraft Commander Responsibility and Authority. An aircraft commander is designated for all flights on the flight authorizations in accordance with AFI 11-401, *Flight Management*, and applicable command supplement. Aircraft commanders are:

2.3.1. In command of all persons aboard the aircraft.

2.3.2. Responsible for the welfare of the crew and the safe accomplishment of the mission.

2.3.3. Vested with the authority necessary to manage crew resources and accomplish the mission.

2.3.4. The final mission authority and will make decisions not specifically assigned to higher authority.

2.3.5. The final authority for requesting or accepting any waivers affecting the crew or mission.

2.3.6. Charged with keeping the applicable C2 or executing agencies informed concerning mission progress.

2.6.11.1. Aircraft call sign.

2.6.11.2. Mission number.

2.6.11.3. ETB (estimated time in block).

2.6.11.4. Maintenance status (See the definitions for a list of maintenance status codes in **Attachment 1** of this AFI.).

2.6.11.5. Distinguished visitor (DV) status and honors codes (Transmit the DV code of each DV on board.) Do not pass the name of the DV on board without the consent of the DV. Outside the continental limits of the United States, the name of the DV will not be passed over unsecure radios.

2.6.12. Aircrews transmit a UHF or VHF arrival advisory as soon as contact can be established with the destination C2 Center. The following information should be furnished:

2.6.12.1. Aircraft call sign.

2.6.12.2. Mission number.

2.6.12.3. ETB.

2.6.12.4. Maintenance status.

2.6.12.5. DV code and requirements.

2.6.12.6. Number of passengers.

2.6.12.7. Hazardous cargo and remote parking requirements.

2.6.12.8. Additional service required.

2.6.12.9. Number of pallets to be downloaded and number that are through manifested.

2.6.12.10. Passenger and pallet space and weight available for the next mission segment.

2.6.12.11. Fuel Requirements.

2.6.12.12. DV Messages. Airborne unclassified messages originated by DV passengers may be transmitted at the discretion of the aircraft commander.

2.6.13. Maintenance Discrepancy Reporting. Aircrews on AMC missions transmit maintenance discrepancies (via VHF, UHF, HF, or L-Band SATCOM) to destination C2 Center or, in the absence of a local C2 Center, to the TACC as soon as possible. Crews should not wait until accomplishing the arrival message to call in this information.

2.7. Mission Commanders.

2.7.1. A mission commander will be required when more than two aircraft are assembled to perform missions away from home station. With two aircraft, the tasked unit will designate an aircraft commander for overall mission responsibility, crew duties and crew rest permitting. When conflicts with crew responsibilities exist, a separate mission commander should be appointed to ensure mission coordination is accomplished.

2.7.1.1. For AMC-tasked missions, TACC/XOO will coordinate and designate a lead planning agency when more than one tanker unit is involved in an AR operation. This planning agency is

responsible for coordinating the entire mission with all involved tanker, receiver, and planning agencies. The lead planning agency will designate the tanker mission commander. The mission commander will normally be the lead tanker aircraft commander for the entire mission.

2.7.1.2. For fighter movements, tasked units will coordinate the tanker support with the Air Combat Command (ACC) Air Operations Squadron (AOS) and provide tanker flight planning, based on the profile provided by the ACC AOS/AODX.

2.7.1.3. For all multi-ship refueling operations, tasked units will ensure an appropriate level of ground and flight supervision is provided for the entire mission. Emphasis should be placed on who is the overall airborne commander and subordinate commanders for each type aircraft in the operation.

2.7.2. For refueling missions, the agencies responsible for mission tasking will coordinate a mission commander for all phases of the mission and ensure all participating aircrews are briefed and advised of mission commander assignment.

2.7.3. During MAJCOM AOS planned movements, the tanker mission commander is the final authority responsible for ensuring tanker aircrews have properly coordinated mission details for the deployment according to AFI 11-207, *Flight Delivery of Fighter Aircraft*.

2.7.3.1. Prior to entering crew rest for the mission, the mission commander will coordinate with the lead planning agency and the appropriate MAJCOM AOS delivery control officer (DCO). During this coordination, the mission commander will review mission itinerary and receive points of contact for the receivers and tankers to include any tankers which are non-collocated.

2.7.3.2. The mission commander will ensure all collocated aircrews complete required mission and formation briefings. The mission commander and all tanker aircrew members will attend the appropriate MAJCOM AOS/DCO pre-takeoff briefing. The aircraft commander may excuse boom operators from required briefings if they are needed to upload/download cargo. Tanker specific information must be briefed in the pre-takeoff briefing to ensure all takeoff, formation, en route, AR, and recovery requirements are coordinated between tanker and receiver aircraft.

2.7.3.3. When non-collocated tankers and receivers are involved, the mission commander (in conjunction with the lead planning agency) will ensure all applicable information, to include rendezvous, formation, abort, and recovery procedures, is relayed to non-collocated aircrews. The mission commander will ensure the controlling agency and all non-collocated tankers and receivers are informed of all anticipated delays or mission changes.

2.8. DUAL ROLE Procedures.

2.8.1. DUAL ROLE missions are missions where both AR and airlift are provided to the user. Primary mission role is normally AR. Missions where cargo movement is primary require a dedicated funded special assignment airlift mission (SAAM).

2.8.2. A valid DUAL ROLE must satisfy the following:

2.8.2.1. The user must have a MAJCOM validated AR requirement. Validated requirement must be received by TACC/XOOK NLT 14 days prior to mission start date to ensure proper mission support.

2.8.2.2. The user must have a MAJCOM validated and TACC/XOB approved cargo requirement of at least six pallets of cargo, not including baggage.

2.8.3. Since the DUAL ROLE mission is primarily an AR mission, the AR requirement must be met first without regard to protecting ancillary cargo capability.

2.8.4. DUAL ROLE ancillary cargo capability is not contractual or guaranteed in any way. Additional tanker sorties or hours will not be expended to refuel the DUAL ROLE KC-10 (i.e. FORCE EXTENSION) solely for protecting ancillary cargo capability.

2.8.5. DUAL ROLE requests that require excessive KC-10 positioning or de-positioning time will not normally be supported unless effective KC-10 aircrew training can be accomplished on positioning and de-positioning legs.

NOTE: For AFRC missions, unit identified training needs should be considered in justifying positioning and de-positioning time. Exceptions may be granted by HQ AMC/DO, with recommendation of the TACC Commander, for missions that do not meet these criteria but reduce total fiscal cost, do not impact other tanker requirements, and present the most practical means available.

2.9. C2 Agency Telephone Numbers. Units should publish a listing of telephone numbers to assist crews in coordinating mission requirements through appropriate C2 agencies. It should be made readily available to crews by publishing it in the FCB, Read File, or other appropriate publication.

2.10. Close Watch Missions. Close Watch missions are designated missions (*e.g. CSAR, AE, PHOENIX BANNER's*) which receive C2 special attention. Close Watch procedures are initiated so that all possible actions are taken to ensure on-time accomplishment and notification to the user when delays occur or are anticipated. Promptly notify the appropriate C2 channels of delays, aborts, or other events that affect on-time departure and advise them of the ETIC, new ETD, and ETA. Notify the C2 within 10 minutes of event and confirm that the user and OPR have been advised.

Chapter 3

CREW MANAGEMENT

3.1. Aircrew Qualification. Primary crew members or those occupying a primary position during flight must be qualified or in training for qualification for that crew position. If non-current, or in training for a particular event, the crew member must be under the supervision of an instructor while accomplishing that event (direct supervision for critical phases of flight).

EXCEPTION 1: Senior staff members who have completed a Senior Staff Familiarization course may occupy either pilot seat under direct IP supervision. These individuals will log “OP” for Flight Authorization Duty Code on the AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**.

EXCEPTION 2: CCTS may allow student pilots to accomplish tanker AR under instructor supervision (direct instructor supervision not required) provided the student pilot has completed a Phase 1A evaluation in the applicable training device and has been graded “qualified” in tanker AR by an Air Force evaluator. See AFI 11-2KC-10 Volume 1 for specific guidance.

NOTE:

Flight qualification training does not commence until the crew member has successfully completed both phase 1A training and an AFI 11-202 Volume 2 evaluation in the applicable aircrew training device.

3.1.1. Pilots:

3.1.1.1. Missions With Passengers. With passengers on board, either the pilot or the copilot may perform the takeoff, climb-out, flight under actual instrument conditions, or make the approach and landing. Only a pilot who is qualified (current and valid AF Form 8, **Certificate of Aircrew Qualification**) will occupy a pilot’s seat with passengers onboard the aircraft. One of the following conditions must be met:

3.1.1.1.1. Two qualified (phase 1B complete) and current pilots must be at the controls.

3.1.1.1.2. A pilot regaining currency and an IP providing direct IP supervision must be at the controls.

3.1.1.2. Touch and go landings with passengers or cargo are prohibited (N/A MAJCOM approved maintenance personnel).

3.1.1.3. Civilian employees under direct contract to the DoD and MAJCOM approved maintenance personnel engaged in official direct mission support activities are considered mission essential and may be onboard when touch-and-go landings are performed.

3.1.1.4. Left Seat Training. With squadron commander approval, current and qualified copilots may be allowed to fly in the left seat on local training missions provided they are under direct IP supervision and no passengers are carried. See AFI 11-2KC-10V1 for additional guidance.

3.1.2. Flight Engineers and Boom Operators. Non-current or unqualified flight engineers or boom operators may perform in their primary crew position on any mission when supervised by a qualified instructor of like specialty (direct supervision for critical phases of flight).

4.10.4. Approximately 12,000 feet pressure altitude.

Chapter 5

OPERATIONAL PROCEDURES

5.1. Checklists. KC-10 checklists are designed as clean up checklists, and items may be accomplished prior to the checklist being read. A checklist is not complete until all items have been accomplished. Momentary hesitations for coordination items, ATC interruptions, and deviations specified in the flight manual, etc., are authorized. Notes amplifying checklist procedures or limitations may be added to the checklists (in pencil).

5.1.1. Checklist Inserts. Units may supplement T.O. guidance (for example Secure Communications) with HQ AMC/DOV approved checklist inserts. These inserts may be placed at the end of the appropriate checklist or in an in-flight guide. All checklist inserts must have a POC. If any crew member has recommendations or changes they should contact the POC. The POC will consolidate inputs and submit changes to HQ AMC/DOV for approval. Local in-flight guides and inserts not affecting T.O. guidance and procedures may be locally approved by OGV.

5.2. Duty Station. A qualified pilot will be in control of the aircraft at all times during flight.

EXCEPTION: Unqualified pilots undergoing qualification training and senior staff members who have completed the Senior Staff Familiarization Course. The aircraft commander, copilot, and flight engineer will be at their duty stations during all critical phases of flight. The boom operator should normally be at his/ her duty station during critical phases of flight unless crew duties dictate otherwise. During other phases of flight, crew members may leave their duty station to meet physiological needs and to perform normal crew duties. During cruise flight, boom operators may leave their duty station for longer periods with aircraft commander approval. Only one pilot, or the flight engineer, may be absent from their duty station at a time. Notify the aircraft commander prior to departing assigned primary duty station.

Instructor/evaluator crewmembers performing primary duties may occupy the boom operator's forward position. (AFRC: Instructor/evaluator pilots performing primary duties may occupy the boom operator's forward position. When occupied by a crewmember other than the primary boom operator, the crewmember is responsible for all primary boom operator duties IAW T.O. 1C-10(K)A-1.)

5.3. Flight Station Entry. Aircraft commanders may authorize passengers and observers access to the flight station during all phases of flight. The total number of persons permitted in the flight station at any given time is limited to the number of seats with operable seat belts. In all cases, sufficient oxygen sources must be available to meet the requirements of AFI 11-202, Volume 3. Passengers and observers will not be permitted access to the pilot, copilot, or flight engineer position regardless of its availability.

5.4. Takeoff and Landing Policy. After thoroughly evaluating all conditions, the aircraft commander will determine who accomplishes the takeoff and landing and occupy either the left or the right seat during all takeoffs and landings.

5.4.1. A qualified aircraft commander will accomplish all approaches and landings under actual emergency conditions unless specific conditions dictate otherwise.

5.5. Not used.

5.6. Outside Observer. When available, use a crew member to assist in outside clearing during all taxi operations and any time the aircraft is below 10,000 feet MSL.

5.7. Seat Belts.

5.7.1. All occupants will have a designated seat with a seat belt. Use of seat belts will be as directed by the aircraft commander, the flight manual, and **Chapter 13** of this Volume. When children under the age of two are accepted as passengers, their sponsor must provide their own Infant Car Seat (ICS). These seats will be secured to a seat using the seat belt. Adults will not hold infant seats during any phase of flight.

5.7.2. Crew members occupying pilot, copilot, flight engineer, or boom operator positions will have seat belts fastened at all times in-flight, unless crew duties dictate otherwise.

5.7.3. All crew members will be seated with seat belts and shoulder harnesses fastened during taxi, takeoff, receiver AR, and landing, unless crew duties dictate otherwise (the flight engineer is exempt from wearing the shoulder harness). Additionally, anytime the seat belt advisory sign is illuminated, crew members will be seated with seat belt fastened, unless crew duties dictate otherwise. For AR, all aircrew members and passengers will be seated with seat belts fastened (unless authorized by the AC to observe tanker AR or crew duties dictate otherwise), and all equipment will be properly secured. Crew members performing instructor or flight examiner duties are exempt from seat belt requirements if not occupying a primary crew position; however, a seat with an operable seat belt will be assigned.

5.8. Aircraft Lighting. In accordance with AFI 11-202, Volume 3 and applicable T.O.s.

5.9. Portable Electronic Devices. In accordance with AFI 11-202, Volume 3.

5.9.1. Unauthorized equipment (Walkman type radios/tape players, CD players, etc.) will not be connected to the aircraft intercom, PA, or radio systems.

5.10. Smoking Restrictions. Smoking is prohibited on board the aircraft.

5.11. Advisory Calls. Pilots will periodically announce their intentions when flying departures, arrivals, approaches, and when circumstances require deviating from normal procedures. See T.O. 1C-10(K)A-1 for additional required advisory calls.

5.12. Communications Policy. The Air Force does not give a promise of confidentiality to aircrews regarding their recorded aircraft crew communications. Crew members are expected to maintain a high degree of cockpit professionalism and crew coordination at all times.

5.12.1. Sterile Cockpit. Limit conversation to that essential for crew coordination and mission accomplishment during taxi, takeoff, air refueling, approach, landing, and any flight below 10,000 feet MSL (except cruise).

5.12.2. Aircraft Interphone. Primary crew members will monitor interphone except when crew duties or physiological needs dictate otherwise. Crew members will advise the aircraft commander prior to checking off interphone.

5.12.3. Command Radios:

5.12.3.1. The pilot not flying the aircraft normally makes all ATC radio calls.

5.12.3.2. In terminal areas the pilot, copilot, flight engineer, and boom operator will monitor the command radio unless directed otherwise. The boom operator or designated crew member should monitor C2 frequencies (if applicable) on the inbound and outbound leg, unless otherwise directed.

5.12.3.3. The pilot operating the command radios will inform the crew when the primary radio is changed. One pilot should record and will acknowledge all ATC clearances. The flight engineer will ensure compliance with all clearances.

5.12.3.4. Both pilots will monitor UHF guard (or VHF guard when appropriate) emergency frequency regardless of primary radio.

EXCEPTION: Only one crew member is required to monitor guard frequencies during tanker or receiver rendezvous and AR. During tanker AR, the PNF normally monitors guard.

5.12.3.5. Unauthorized UHF frequencies will not be used to conduct HAVE QUICK and SECURE VOICE training IAW the Federal Communications Commission (FCC).

5.12.4. Crew Resource Management (CRM) Assertive Statement "Time Out":

5.12.4.1. "Time Out" is the common assertive statement for use by all crew members. The use of "Time Out" will:

5.12.4.1.1. Provide a clear warning sign of a deviation or loss of situational awareness.

5.12.4.1.2. Provide an opportunity to break the error chain before a mishap occurs.

5.12.4.1.3. Notify all crew members that someone sees the aircraft or crew departing from established guidelines, the briefed scenario, or that someone is simply uncomfortable with the developing conditions.

5.12.4.2. As soon as possible after a "Time Out" has been called, the aircrew will take the following actions:

5.12.4.2.1. Safety permitting, stabilize the aircraft.

5.12.4.2.2. The initiating crew member will voice his or her concerns to the crew.

5.12.4.2.3. The aircraft commander will provide all other crew members with the opportunity to voice inputs relative to the stated concerns.

5.12.4.2.4. After considering all inputs, the aircraft commander will direct the aircrew to continue the current course of action or direct a new course of action.

NOTE:

The aircraft commander is the final decision authority.

5.13. Transportation of Pets. Transporting pets (dogs and cats) on aircraft operated by or under the control of AMC in conjunction with the sponsors permanent change of station is authorized. Other pets or animals are normally prohibited, but may be moved according to DoD 4515.13R.

5.14. Alcoholic Beverages. AMC/DO may authorize the dispensing of alcoholic beverages.

5.15. Runway, Taxiway, and Airfield Requirements.

Table 5.1 Minimum Runway and Taxiway Requirements.

Minimum Runway Length	Minimum Runway Width	Minimum Taxiway Width
7000 ft	148 ft	75 ft (stressed)

should not normally exceed 10,000 lbs. When dealing with unplanned contingencies, crews will still plan to touchdown with holding fuel (12,000 lbs. minimum). Units may develop standard alternate fuel requirements for local training missions; however, these fuel requirements will not be less than those specified in this AFI.

5.18. Fuel Jettison Procedures. Fuel jettison is limited to the minimum necessary for safe and effective flight operations. Except in the case of an emergency, prior to jettisoning fuel, crews will notify the appropriate ATC or flight service facility of intentions, altitude, and location. Inform the appropriate ATC or flight service facility when the operation is complete.

5.18.1. Jettison fuel only under the following circumstances:

5.18.1.1. Aircraft emergency. Immediate reduction of gross weight is critical to safe recovery of the aircraft.

5.18.1.2. Urgent operational requirements. Immediate reduction of gross weight is necessary to meet urgent operational mission tasking.

5.18.2. Units will establish jettison areas and procedures to minimize the impact of fuel jettisoning into the atmosphere.

5.18.2.1. Units will initiate AF Form 813, **Request for Environmental Impact Analysis**, and submit to the base environmental coordinator.

5.18.2.2. Designate jettison areas off published airways and avoid urban areas, agricultural regions, and water supply sources.

5.18.2.3. Avoid circling descents.

5.18.3. Use jettison altitudes above 20,000-feet AGL to the maximum extent possible.

5.18.4. Use designated jettison areas to the maximum extent possible, except when safety of flight would be compromised.

5.18.5. If jettison is accomplished, record all pertinent data to include flight conditions, altitude, airspeed, air temperature, wind direction and velocity, type and amount of fuel, aircraft type and position at time of jettison, time and duration of jettison activity, and reason jettison was accomplished. Retain this information for 6 months as documentation in the event of claim against the government resulting from the fuel jettison.

5.19. Airspeed. In accordance with applicable tech orders, aircraft may exceed 250 KIAS or in-flight minimum maneuver speed below 10,000 feet to accomplish formation departures or as operational performance dictates.

5.20. Bird Aircraft Strike Hazard (BASH) Programs. BASH programs are centralized unit efforts that provide information cross-feed, hazard identification, and a consolidated course of action. All AMC units will have a BASH Reduction Plan in accordance with AFI 91-202. AMC tenant flying units will work with the host base to create a plan. As a minimum, units must implement the following procedures:

5.20.1. Ensure compliance with the following Bird Watch Condition restrictions:

5.20.1.1. Bird Watch Condition Low - No operating restrictions.

5.20.1.2. Bird Watch Condition Moderate - Initial takeoffs and final landings allowed only when departure and arrival routes will avoid bird activity. Local IFR/VFR traffic pattern activity is prohibited.

5.20.1.3. Bird Watch Condition Severe - All takeoffs and landings are prohibited. Waiver authority is local OG/CC or equivalent. AMC/DO waiver is required to operate at airfields not controlled by the Mobility Air Force (MAF) units.

5.20.2. Make every effort to not schedule takeoffs, landings, and low-levels from one hour before to one hour after sunrise and sunset during the phase II period. Also, significant bird hazards will be published in FLIP GP and the IFR Supplement along with the associated airfield operating hour restrictions and avoidance instructions.

5.20.3. When operating at airfields where no BASH program exists, aircraft commanders have the authority to delay takeoffs and arrivals due to bird condition. Coordinate actions through appropriate C2 authority.

5.20.4. Enroute. The aricrew should consider bird migratory patterns during enroute portion of the mission to minimize the potential of an in-flight bird strike. The Bird Avoidance Model (BAM) on HQ AFSC/SEF www site (<http://www-afsc.saia.af.mil/AFSC/Bash/home.htm>) provides BASH information including regionalized CONUS bird migration, PFPS software overlay, and latest news. The Avian Hazard Advisory system web site (www.ahas.com) is another source for real time bird hazard information. See AFPAM 91-212, *Bird Aircraft Strike Hazard (BASH) Management Techniques*, for additional information.

5.21. Functional Check Flights (FCF) and Acceptance Check Flights (ACF). FCFs and ACFs will be performed according to T.O. 1-1-300 and AMCI 21-101. Additional guidance can be found in T.O.s 00-20-6, 1C-10(K)A-6CF-1, and 1C-10(K)A-1.

5.21.1. Terms and Abbreviations:

5.21.1.1. FCF—Performed after accomplishing inspections or maintenance to assure the aircraft is airworthy and capable of mission accomplishment.

5.21.1.2. ACF—ACFs specify guidelines for accepting new production aircraft and to determine compliance with contractual requirements (e.g. C checks).

5.21.2. FCF Restrictions:

5.21.2.1. Conditions requiring an FCF according to T.O. 1C-10(K)A-6CF-1, and AMCI 21-101 include (but are not limited to) major retrofit modifications, removal or replacement of moveable flight control surfaces, major repairs that would affect the flying characteristics of the aircraft, adjustment, removal or replacement of major components of the flight control system for which airworthiness cannot be verified by maintenance operational checks, or removal or replacement of any two engines.

5.21.2.2. The OG/CC is responsible for the wing FCF program. The OG/CC may waive a complete FCF and authorize an FCF to check only systems disturbed by maintenance, inspection or modification. Additional guidance should be published in the local chapter of these instructions.

5.21.2.3. Check flight should be conducted within the designated check flight airspace of the base from which the flight was launched except when the flight must be conducted under specific conditions, not compatible with local conditions and area restrictions.

5.21.2.4. The decision to approve a combined FCF and ferry flight is the responsibility of the NAF/DO.

5.21.2.5. The best qualified instructor will accomplish FCFs or designated Stan/Eval aircrews.

5.21.2.6. FCF qualified to their assigned aircrew position by the OG/CC in a letter.

5.21.2.7. FCFs will normally be conducted in daylight, VMC conditions. However, the OG/CC may authorize a flight under a combination of VFR, IFR, and "VFR on Top" conditions. The flight will begin in VFR conditions. If the aircraft and all systems are operating properly, it may proceed IFR to penetrate cloud cover to VFR on top to continue the altitude phase of the flight.

5.21.2.8. FCF aborts—If a malfunction occurs during an FCF and is not related to the condition generating the FCF, and the original condition operationally checks good, the aircraft may be released for flight.

5.21.2.9. OG/CC and deployed mission commander may authorized temporary waivers to these FCF procedures for aircrew qualification when operationally necessary. Permanent waivers require AMC approval.

5.22. Participation in Aerial Events. (IAW AFI 11-209 and MAJCOM Supplement) Aerial events must be sanctioned and individually approved by the appropriate military authority and the FAA. AFI 11-209 and AMC Supp 1 clearly identifies events sanctioned for support, and specifies the approval authority for each type. AFI 11-209 also stipulates that units participating in aerial events will ensure activities are coordinated with the FAA through the regional Air Force representative.

5.23. Not Used.

5.24. Aircraft Recovery From Unprepared Surfaces. Aircrews will normally not attempt to recover an aircraft after inadvertent entry onto unprepared surfaces not suitable for taxi. Using the appropriate equipment, ground crews will accomplish aircraft recovery. Unless an emergency situation dictates otherwise, aircrews may accomplish recovery only if there is no aircraft damage, the surface will support the aircraft, and the AC has coordinated with appropriate AMC headquarters maintenance authorities.

- 6.3.4. Aircrews will review theater indoctrination folders prior to mission/deployment. This review will be tracked in AFORMS as event G290.
- 6.3.5. Upon return, the aircraft commander will compile a trip report, when necessary, detailing lessons learned. The trip report will be placed in the theater indoctrination folder, closing the loop on ensuring validity of the folder.
- 6.3.6. Review tasking, itinerary, and ALTRV requirements.
- 6.3.7. Review applicable OPORD and FLIP.
- 6.3.8. Review the Foreign Clearance Guide for areas of operation. Obtain necessary diplomatic clearances where required.
- 6.3.9. Obtain required customs forms.
- 6.3.10. Complete TDY order request forms (if required).
- 6.3.11. Obtain computerized flight plans as appropriate.
- 6.3.12. Coordinate with combat crew communications for worldwide FLIPs and sufficient communications security (COMSEC) materials for the duration of the mission.
- 6.3.13. Review anti-hijacking procedures in AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*, and **Chapter 7** of this instruction.
- 6.3.14. Ensure physiological training, annual physical, immunizations, and standardization checks will remain current throughout the TDY period.
- 6.3.15. Obtain visas, if required.
- 6.3.16. Obtain terrain charts for unfamiliar destinations, if available.
- 6.3.17. Compile sufficient spare forms, flight orders, etc. to cover the TDY period.
- 6.3.18. Release available seats to passenger terminal.

6.4. Aircrew Publications Requirements. Primary crew members will carry the publications specified in **Table 6.1.** on all missions. Two-engine ferry crew members will carry publications indicated by “\$.”

Table 6.1. Publication Requirements.

Publication	AC	CP	FE	BO
TO 1C-10(K)A-1, Flight Manual			X	
TO 1C-10(K)A-1-1, Performance Manual			X	
TO 1C-10(K)A-1-101, Structural Assessment Data			X	
TO 1C-10(K)A-1-2, Minimum Equipment List (MEL)				
(maintained on aircraft)				
1C-10(K)A-1-4, Two-Engine Ferry			\$	

Publication	AC	CP	FE	BO
1C-10(K)A-1CL-1, Pilot and Flight Engineer Emergency Checklist	X	X	X	
1C-10(K)A-1CL-2, Pilot and Flight Engineer Normal Checklist	X	X	X	
1C-10(K)A-1CL-3, Boom Emergency Checklist				X
1C-10(K)A-1CL-3-1, Boom Normal Procedures Checklist				X
1-1C-1 Basic Air Refueling	X			
1-1C-1-32, Air Refueling Receiver	X			
1-1C-1-32CL-1, Air Refueling Receiver Checklist	X	X	X	
1-1C-1-33, Air Refueling Tanker	X			
1-1C-1-33CL-1, Air Refueling Tanker Checklist	X	X	X	
1-1C-1-33CL-2, Air Refueling Tanker Boom Operator Checklist				X
1C-10(K)A-5, Weight and Balance Handbook (<i>maintained on aircraft</i>)				
1C-10(K)A-9, Cargo Loading Manual				X
1C-10(K)A-9CL-1, Cargo Loading Checklist				X
AFI 11-202, Volume 3, <i>General Flight Rules</i>	X			
AFI 11-2KC-10, Volume 3, <i>KC-10 Operations Procedures</i>	X			

Section 6B—Pre-departure.

6.5. Airfield Certification. All crew members and staff mission planners will review airport qualification audiovisual slide tape programs as available before operating missions into unfamiliar airfields. In addition, aircrews will review the Airfield Suitability and Restrictions Report (ASRR) and should contact HQ AMC/DOA for updates to airfield operability and weight bearing capability.

6.6. Aircrew Intelligence Briefing. Prior to leaving home station on missions departing the CONUS, crews will receive an intelligence briefing that will emphasize terrorist, enemy, and friendly political and military development in the area in which they will be flying. Once in theater, aircrews should receive intelligence updates on initial arrival at a Forward Operating Location (FOL) or en route stop and thereafter when significant developments occur. Report information of possible intelligence value to the local intelligence officers at the completion of each mission.

6.7. Flight Crew Information File (FCIF) Procedures.

6.7.1. Review FCIF, volume 1, (index and safety-of-flight files, as a minimum) before all missions or ground aircrew duties. Update the FCIF currency record with the latest FCIF item number, date, and crew member's initials or as specified.

6.7.2. Crew member delinquent in FCIF review or joining a mission en route will receive an FCIF update from a primary aircrew member counterpart on the mission. Instructor pilots who fly with general officers are responsible for briefing appropriate FCIF items.

6.7.3. Crew members not assigned or attached to the unit operating a mission will certify FCIF review by entering the last FCIF number and their initials behind their name on the file copy of the flight authorization.

6.8. Flight Crew Bulletins (FCB).

6.8.1. FCBs are issued under provisions of AFI 11-202 Volume 2 and MAJCOM supplement. Operations group Stan/Eval is the OPR for FCBs. Items in FCBs may include local procedures and policies concerning equipment and personnel generally not found in any other publications.

6.8.2. All crew members should be cognizant of FCB contents.

6.9. Airfield Security. When departing on missions destined outside the CONUS, aircraft commanders should review applicable MAJCOM security publications.

6.10. Mission Kits. Carry mission kits on all operational missions. Suggested items include:

NOTE:

* Indicates mandatory for all missions away from home station.

6.10.1. Publications:

- 6.10.1.1. *AFI 11-401, *Flight Management*.
- 6.10.1.2. *AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*.
- 6.10.1.3. *AFJI 11-204, *Operating Procedures for Aircraft Carrying Hazardous Materials*.
- 6.10.1.4. *AMCI 11-208, *Tanker/Airlift Operations*.
- 6.10.1.5. *ATP-56A, *NATO Air to Air Refueling*.
- 6.10.1.6. *Airfield Suitability and Restrictions Report (ASRR).
- 6.10.1.7. *AMC Aircrew Border Clearance Guide.
- 6.10.1.8. *FCB (Flight Crew Bulletin).
- 6.10.1.9. *AMC Handbook 11-214, *AMC Aircrew Hazardous Materials Handbook*

6.10.2. Forms:

- 6.10.2.1. DD Form 1351-2, **Travel Voucher or Sub voucher**.
- 6.10.2.2. DD Form 1351-2C, **Travel Voucher or Sub voucher (Continuation Sheet)**.
- 6.10.2.3. *DD Form 1854, **US Customs Accompanied Baggage Declaration**.
- 6.10.2.4. *DD Form 2131, **Passenger Manifest**.
- 6.10.2.5. *Customs Form, CF 7507, **General Declaration (Outward/Inward)**.
- 6.10.2.6. *AF Form 15, **United States Air Force Invoice**.
- 6.10.2.7. *AF Form 315, **United States Air Force AvFuels Invoice**.
- 6.10.2.8. AF Form 457, **USAF Hazard Report**.
- 6.10.2.9. *AF Form 651, **Hazardous Air Traffic Report (HATR)**.
- 6.10.2.10. *AF Form 1297, **Temporary Issue Receipt**.

- 6.10.2.11. *AF Form 3578, **Tanker Activity Report (TKACT).**
- 6.10.2.12. *AFTO Form 18, **KC-10 Structural Assessment Record.**
- 6.10.2.13. * AF Form 4095, **KC-10A Load Planning Worksheet.**
- 6.10.2.14. * AF Form 4130, **KC-10 Restraint Computation Worksheet.**
- 6.10.2.15. AMC Form 38, **Air Mail – Crew Resource Management Anonymous Reporting System** as require by MAJCOM.
- 6.10.2.16. AMC Form 43, **AMC Transient Aircrew Comments.**
- 6.10.2.17. AMC Form 54, **Aircraft Commander's Report on Services/Facilities.**
- 6.10.2.18. *AF Form 4091, **Mission Data Form.**
- 6.10.2.19. AMC Form 97, **AMC In-Flight Emergency and Unusual Occurrence Worksheet.**
- 6.10.2.20. *AF Form 4031, **CRM Skills Criteria Training/Evaluation Form.**
- 6.10.2.21. * AF Form 4075, **Aircraft Load Data Worksheet.**
- 6.10.2.22. AF Form 4087, **KC-10A CG Graph**
- 6.10.2.23. AF Form 4088, **KC-10A Weight and Balance Fuel Vectors.**
- 6.10.2.24. * AF Form 4089, **KC-10A TOLD Card Worksheet.**
- 6.10.2.25. *AF Form 4090, **KC-10 Flight Plan and Fuel Log.**
- 6.10.2.26. HMS Customs Declaration.
- 6.10.2.27. Japanese Customs Declaration.

6.10.3. Orders:

- 6.10.3.1. DD Form 1610, **Request and Authorization for TDY Travel of DoD Personnel.**
- 6.10.3.2. AF Form 1631, **NATO Travel Orders/Ordre De Mission OTAN.** - (when required).
- 6.10.3.3. *(AMC Form 41), **Flight Authorization.**

6.10.4. Miscellaneous:

- 6.10.4.1. *Box car seals.
- 6.10.4.2. *Masking tape.

6.11. Route Navigation Kits.

- 6.11.1. A route navigation kit is issued at home station and remains with the aircraft until return. Kits contain sufficient quantities of material to cover the planned mission and global operations as required.
- 6.11.2. Minimum contents of route navigation kits include the following:

Table 6.2. Minimum Contents of Route Navigation

ITEM (APPLICABLE TO AREA OF OPERATION (AOR))	NUMBER
FLIP GP Planning (sections GP, AP/1, AP/1B, AP/2, AP/3)	1
FLIP IFR Supplement	2
FLIP Flight Information Handbook	1
FLIP En route (high and low)	2
FLIP Instrument Approach Procedures (high and low)	3
Standard Instrument Departures (East and West United States, Volumes 1 and 2)	3
Instrument Departures Europe and North Africa (high and low)	3
Standard Terminal Arrival Routes (STAR)	3
Topographical and Sectional Charts for AOR (GNC/OPC/TPC/JNC)	as required
FLIP VFR Supplement	1
DoD Area Arrival Charts	(2) if available

6.11.3. Local area navigation kits may be used in lieu of route navigation kits on local unit training sorties. Contents of these kits is a local unit decision.

6.12. Briefing Requirements.

6.12.1. Agency Briefing. The current operations branch conducts this briefing as a final aircrew briefing for special unit missions. It should be held if the takeoff is more than 6 hours after the initial briefing and no earlier than 6 hours prior to takeoff. Consider the crew rest provisions of AFI 11-202 Volume. 2 and this AFI in establishing the time for this briefing. The purpose of this briefing is to advise aircrews of the latest weather information and mission changes and review specialty information in the specialized briefing. Unit staff personnel should conduct the pre-takeoff briefing. All participating crew members and designated spares must attend the briefing. The briefing should be concise and not exceed 30 minutes. A recommended sequence of presentation follows; however, it may be varied or expanded to meet mission and unit requirements. (See **Chapter 16** of this AFI for further guidance.)

6.12.1.1. Time hack.

6.12.1.2. Briefing classification and room security.

6.12.1.3. Roll call.

6.12.1.4. Purpose of mission.

6.12.1.5. Weather briefing.

6.12.1.6. Aircrew aircraft assignment, parking location, tactical call signs, aircraft special configurations and loading, fuel loads, and the configuration and location of the spare aircraft, if applicable.

6.12.1.7. Cell composition and sortie assignment.

6.12.1.8. Takeoff performance data.

6.12.1.9. Timing and control times.

6.12.1.10. Start engines.

6.12.1.11. Takeoff.

- 6.12.1.12. Route of flight.
- 6.12.1.13. AR control times.
- 6.12.1.14. Intended landing base.
- 6.12.1.15. Approaches.
- 6.12.1.16. Divert and abort procedures.
- 6.12.1.17. NOTAMs.
- 6.12.1.18. FCIF and FCB as appropriate.
- 6.12.1.19. Announcements.
- 6.12.1.20. Technical order changes.
- 6.12.1.21. Flying safety.
- 6.12.1.22. Transportation.
- 6.12.1.23. Special Briefing Items (Contact the local current operations or controlling agency [e.g. command post] to confirm mission requirements. Controlling agencies provide information necessary to complete mission planning. The aircraft commander and controlling agency jointly share responsibility to identify special briefing requirements. Briefings include, but are not limited to, buffer zone, electronic warfare activities, SAFE PASSAGE, MIJI, diplomatic clearance, hazardous cargo, airfield qualification program, anti-hijacking procedures [if different from standard], operations and safety supplements to flight manuals [if issued within last 72 hours], and specialized procedures for JCS contingency operations, ORI, etc.).
- 6.12.1.24. Commander's remarks.

6.12.2. Aircraft Commander Briefing. Brief crew members on the specific mission details if not previously accomplished.

- 6.12.2.1. Time hack.
- 6.12.2.2. Briefing classification for the mission profile.
- 6.12.2.3. Review weather.
- 6.12.2.4. Mission itinerary and profile.
- 6.12.2.5. Aircraft tail number and call sign.
- 6.12.2.6. Aircraft gross weight and fuel load.
- 6.12.2.7. Communications requirements and procedures.
- 6.12.2.8. Fuel Reserve.
- 6.12.2.9. Review departure and approach to be flown.
- 6.12.2.10. Airdrome restrictions and hazards.
- 6.12.2.11. Emergency procedures review.
- 6.12.2.12. Specialized briefings (formation tactics, AR, etc.).
- 6.12.2.13. C2 and execution procedures.

6.16.3. Screen Heights Requirements. From a performance computation point of view, required screen heights are in essence obstacles and will be treated as such in addition to any other physical obstacles for the departure. Decrease the runway available by that distance required to reach the DER at the required screen height. This distance can be computed from the climbout flight path charts in the performance manual. Use the following as a guide to determine required screen heights.

NOTE:

Screen height requirements for departures depend on the agency that wrote the departure and/or the airfield where the departure is being flown. There is no standard or easy way for crews to determine required screen height requirements in some cases. Therefore, when using departures other than those listed below, or when any doubt exists about which screen height to use, plan to cross the DER at 35 feet (minimum) unless you can ascertain a different screen height requirement from the appropriate authority.

6.16.3.1. SIDs. Required Screen heights depend on the agency that wrote the SID (identified in parenthesis immediately to the RIGHT of the SID Chart Reference Number).

6.16.3.1.1. USAF, USN, or USMC SID: Zero feet.

6.16.3.1.2. US Army and FAA SID: 35 feet.

6.16.3.1.3. Foreign Civil SID (must be an ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.1.4. Foreign Military SID (NATO, ICAO member nation listed in FLIP GP): 35 feet.

6.16.3.1.5. Foreign Military SID (Non-NATO, ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.2. Radar Vector, Published IFR Departure Procedure or VFR Departures.

6.16.3.2.1. USAF, USN, or USMC Airfield: Zero feet.

6.16.3.2.2. US Army and FAA Civil Airfield: 35 feet.

6.16.3.2.3. Joint Use Airfield with the United States: 35 feet.

6.16.3.2.4. Foreign Civil Airfield (must be an ICAO member nation listed in FLIP GP): 16 feet.

6.16.3.2.5. Foreign Military Airfield (NATO, ICAO member nation listed in FLIP GP): 35 feet.

6.16.3.2.6. Foreign Military Airfield (Non-NATO, ICAO member nation listed in FLIP GP): 16 feet.

6.16.4. Climbout Performance. KC-10 climb performance is not linear. Performance manual gradients represent a snap shot view of the aircraft's climb capability at the instant the gear is fully retracted. Since aircraft climbout is not linear, do not equate required climb gradient to aircraft climb profile. The only way to ensure obstacle clearance is to plot all significant obstacles on the climbout flight path charts contained in the performance manual. If there is any doubt about the aircraft's ability to clear all obstacles in the event of an engine failure, plan an ENGINE OUT escape route, and use it if you lose an engine.

NOTE:

Charted climb gradients assume a straight ahead flight path. If thrust and speed remain constant, climb gradient available decreases as bank angle increases.

NOTE:

The FAA is in the process of renaming SIDs and IFR Departure Procedures in the United States. In the future, the FAA will refer to IFR departure procedures and SIDs using the phrase "Departure Procedures (DPs)." Although the terms "SID" and "IFR Departure Procedure" are being removed from the FAA's vocabulary, both are still widespread throughout the rest of the world. Until the transition in terminology is more complete, this chapter will still use the old terms.

6.17. Obstacle Clearance Planning.

6.17.1. Begin collecting obstacle information during mission planning, prior to departing home station. Obstacle Identification Surface (OIS). Obstacle identification for SID purposes (FAA Handbook 8260.3B, AFJMAN 11-226, *U.S. Standard for Terminal Instrument Procedures (TERPS)*), are those objects that penetrate an OIS of 40:1 (For every 40 feet traveled in the horizontal plane, one foot is gained in altitude, thus, $6076/40 = 151.9$ feet, therefore a 152 feet/NM OIS). Calculation of the OIS on a SID continues until the SID reaches a MEA or until the SID terminates. Climb gradients of 200 feet per NM will provide at least 48 feet per NM clearance above all obstacles that do not penetrate the OIS. Complying with published climb gradients found on a SID or IFR departure procedure will provide at least 48 feet per NM clearance above all obstacles that do penetrate the OIS. The aircraft commander must be aware and thoroughly brief the crew on all obstacles along the departure flight path.

6.17.1.1. The AMC Airfield Suitability and Restrictions Report (ASRR) is an excellent source for obstacle information, however, it is not a stand alone document. It is intended to supplement published climb gradients and obstacle information found on SIDs, Published IFR Departure Procedures, and terrain charts.

6.17.1.2. If more information is required, aircrews may call HQ AMC/DOVS for additional airfield obstacle data after reviewing GDSS. DSN 576-3112.

6.17.2. Objects penetrating the OIS may or may not be depicted. (They definitely will not be depicted on civil procedures) Objects which do not penetrate the OIS will not normally be depicted, but may still require consideration in takeoff planning since aircraft climbout is not linear (when accomplishing the ENGINE OUT departure profile, leveling at pressure height for acceleration may result in penetration of the OIS). The only way to ensure obstacle clearance on any departure is to plot all significant obstacles.

6.17.3. SIDs or IFR Departure Procedures simplify ATC procedures while providing safe routing to the enroute structure; however, SIDs should not be used as the sole source of obstacle information for departure planning. If used as such, inadequate (ENGINE OUT) obstacle clearance may result. An asterisked climb gradient is applicable to a physical obstacle and is based on the controlling obstacle. The controlling obstacle is defined as the obstacle requiring the greatest climb gradient within the flight path. Crews must be aware that other obstacles may be present. Obstacles are not normally depicted on SIDs when climb gradients of less than 152 feet per NM are required to clear them. Use all available sources to determine other significant obstacle information. The only way to ensure obstacle clearance is to plot all significant obstacles using the climbout flight path charts contained in the performance manual. SIDs, instrument approach plates, and topical sectional charts, etc. must be used to determine the distance and height values for all significant obstacles along the flight path.

- 6.22.3.7. Delay engine start (normal engine start is 15-20 minutes prior to takeoff). Start #2 engine 5 minutes prior to takeoff, gross weight permitting.
- 6.22.3.8. Cruise CG should be aft if practical.
- 6.22.3.9. Fly en route descents when possible.
- 6.22.3.10. Raise boom and close sighting window between multiple ARCTs when feasible.
- 6.22.4. Fuel loads:
 - 6.22.4.1. KC-10 units may develop standard ramp loads that meet the minimum local training mission requirements or emergency evacuation requirements (whichever is less).
 - 6.22.4.2. De-fuel will not be required if RRFL is less than the standard ramp fuel load.

Section 6C—Preflight

6.23. AFTO Form 781, AFORMS Aircrew/Mission Flight Data Document. Review AFTO Form 781 before applying power to the aircraft or operating aircraft systems. The exceptional release must be signed before flight. A maintenance officer, maintenance superintendent, or authorized civilian normally signs the exceptional release. If one of these individuals is not available, the aircraft commander may sign the exceptional release. Ensure that the DD Form 1896, **Jet Fuel Identia-plate** and AIR card is aboard the aircraft.

6.24. Aircraft Servicing and Ground Operations.

- 6.24.1. Aircraft Refueling. Aircrew members qualified in ground refueling may perform refueling duties. Flight engineers acting as refueling supervisors and panel operators will comply with T.O. 00-25-172 and applicable T.O. 1C-10(K)A-2 series T.O.s. The APU will be used as the primary power source for refueling. Aircrews will only refuel in cases when maintenance support is not readily available and the mission would be delayed. Crew members may augment maintenance refueling teams at en route stops.
- 6.24.2. Concurrent Ground Operations. Concurrent ground operations (simultaneous refueling or de-fueling while cargo or maintenance operations are being performed) are authorized in accordance with T.O. 00-25-172. Aircrews performing Dash-1 preflight inspections or cargo loading concurrent with servicing must have cooperation and close coordination with the Chief Servicing Supervisor (CSS). The CSS will remain in continuous intercom contact with fuel servicing team members during the entire servicing operation. Team members include CSS, Single Point Refueling (SPR) monitor for each SPR in use, refueling panel monitor, fuel specialists, and one person to monitor the opposite side wing fuel vents. One additional person is required to monitor the passenger compartment when passengers are on board.
 - 6.24.2.1. Movement into or within the safe area must be under control of the CSS. Individuals must properly ground themselves before boarding the aircraft or handling fuel servicing equipment. Concurrent servicing, loading, and maintenance must be conducted according to T.O. 00-25-172 and current checklists, which will be reviewed before concurrent operations. Current checklist procedures take precedence over T.O. 00-25-172 procedures.
 - 6.24.2.2. Simultaneous fuel and oxygen servicing is not authorized.

6.24.3. The following guidance will be used for fuel servicing (refuel) operations only:

6.24.3.1. Passengers are not allowed on board unless expressly directed by MAJCOM headquarters or in combat.

EXCEPTION: According to **Chapter 20** of this AFI. If allowed on board, passengers are prohibited in the cargo compartment during winching.

6.24.3.2. Electric and electronic equipment may be on (prior to) provided it does not radiate energy, but do not turn on or off during refueling.

NOTE:

Circuit breakers and instrument ground switches are not required to be opened during concurrent servicing operations.

6.24.3.3. Pull circuit breakers for Radar altimeters. TACAN must be turned off.

6.24.3.4. Radar may be in standby but timing permitted should be turned off.

6.24.3.5. IFF/SIF may be in standby but timing permitted should be turned off.

6.24.3.6. INS/FMS may be "on" and may be updated. Do not turn on or off during refuel operations.

6.24.3.7. Winching of rolling stock and non-spark producing pallets is authorized. Driving vehicles equipped with spark arresters is authorized during fuel servicing. When loading vehicles without spark arresters, the vehicles must be completely inside the cargo compartment or outside of the established fuel servicing safety zone before fuel servicing lines can be pressurized.

EXCEPTION: All diesel and turbo-charged (without waste gates) gasoline-powered vehicles can be on-loaded or off-loaded without having to stop fuel flow.

6.25. Aircraft Recovery Away from Main Operating Base (MOB). When an aircraft will land at a base other than the MOB, crew chiefs should accompany the aircraft. The aircraft commander is responsible for ensuring the aircraft is turned to meet subsequent mission tasking. If qualified aircraft specialists are unavailable, the aircrew is responsible for turning the aircraft to meet subsequent mission tasking.

6.25.1. Recovery items the aircrew may be responsible for include, but are not limited to, the following:

6.25.1.1. Parking and receiving.

6.25.1.2. Aircraft servicing, including AGE usage.

6.25.1.3. Supervision of minor maintenance within local capability.

6.25.1.4. Minor configuration changes to meet mission tasking.

6.25.1.5. Securing the aircraft prior to entering crew rest.

6.25.1.6. Coordinating aircraft security requirements.

6.25.1.7. AFTO 781-series forms maintenance.

6.25.2. In all cases where aircrews turn aircraft without qualified maintenance specialist assistance, comply with the appropriate maintenance tech order.

6.30. Handling of Classified Cargo, Registered Mail, NMCS/VVIP/FSS Shipments, and Courier Material.

6.30.1. Receipts will be obtained for classified cargo, NMCS/VVIP/FSS shipments, and registered mail at the on-load and off-load station using the cargo manifest.

6.30.1.1. Defense Courier Service (DCS) couriers coordinating with the aircraft commander are authorized to designate officer and enlisted (E-5 and above) crew members on military aircraft as couriers to escort and safeguard courier material when other qualified personnel are not available. Qualified passengers will be designated prior to designating crew members. The following restrictions apply.

6.30.1.1.1. Primary crew members will not be designated without the consent of the aircraft commander.

6.30.1.1.2. Crew members on aircraft scheduled to stop at locations where DCS couriers cannot provide en route support will not be designated as couriers. This does not relieve the aircraft commander of the responsibility for life and death urgent shipments.

6.30.2. During stops at en route locations supported by DCS stations, DCS couriers are required to meet designated couriers to protect the material.

6.30.2.1. During unscheduled stops, crew members may place courier material in temporary custody of the following agencies listed in descending order of priority:

6.30.2.1.1. DCS courier.

6.30.2.1.2. TOP SECRET control officer of the US armed forces.

6.30.2.1.3. US Department of State diplomatic courier.

6.30.2.1.4. US Department of State activity.

6.30.2.1.5. US military guards.

6.30.2.1.6. US DoD civilian guards.

6.30.3. If unable to follow the itinerary to the destination of the courier material, or if material is lost, stolen, or otherwise compromised, report circumstances to the nearest armed forces courier station and notify the local US military commander or US government activity.

Section 6D—Departure

6.31. On Time Takeoffs. Mission departures are on time if the aircraft is airborne within -20/+14 minutes of scheduled takeoff time.

6.31.1. AR Missions. Scheduled takeoff time may be adjusted to make good the ARCT. Notify C2 agency prior to takeoff to adjust the scheduled takeoff time.

6.31.2. Early Departures:

6.31.2.1. Home Station. Early departures are authorized to prevent a delay due to weather, ATC restrictions, airfield or aircraft operational limitations, to adjust mission flow during a large scale operation, or if approved through C2 Center.

6.31.2.2. En route Stations. Early departures at en route stations may be authorized through C2 Center, provided the impact on local and downrange facilities and crew duty is evaluated.

6.32. Weather Minimums For Takeoff. See Table 6.3.

Table 6.3. Weather Minimums for Takeoff.

Mission	Visibility	Remarks
Operational	RVR 1000	When less than RVR 1600, but equal to or greater than RVR 1000, the crew may take off, provided the runway has dual RVR readouts and displays (minimum RVR 1000 on both) and runway centerline lighting is operational. For any takeoff below 1600 RVR, the crew must be fully qualified.
All others	RVR 1600	For runways with more than one operating RVR readout, RVR must read 1600 minimum on all.

NOTE 1: If no RVR readout is available for the departure runway, visibility must be reported to be 1/2 mile (800 meters).

NOTE 2: When weather is below approach and landing minimums (ceiling, visibility, or crosswinds are out of limits for landing) a takeoff alternate is required (See paragraph 6.19.).

Section 6E—En route

6.33. Flight Progress.

6.33.1. Over-water Flights. Prior to flight, plot the oceanic portion of the flight on an appropriate chart. Annotate the chart with the mission number, aircraft commander's name, preparer's name, and date. If practical, chart may be reused.

6.33.2. Anytime waypoint data is inserted into the FMS, it will be verified by two primary crew members. Check both the coordinate information and the distances between waypoints against the flight plan.

6.33.3. In-Flight, use all available navigational aids to monitor FMS performance. Immediately report malfunctions or any loss of navigation capability, which degrades centerline accuracy to the controlling ARTCC. Use the following procedures for flight progress:

6.33.3.1. Obtain a coast out fix prior to, or immediately on entering the Category I Route or over-water segment. Perform a gross error check using available NAVAIDS and annotate the position and time on the chart.

6.33.3.2. When approaching each waypoint, recheck coordinates for the next waypoint.

6.33.3.3. Approximately 10 minutes after passing each oceanic waypoint, record and plot the aircraft position and time on the chart, and ensure compliance with courses and ETA tolerances.

6.33.3.4. If a revised clearance is received, record and plot the new route of flight on the chart.

6.33.4. Upon return to home station, turn in the charts (copies if reused) and applicable computer flight plans to the squadron. Squadrons will retain the charts, computer flight plans, and associated materials for a minimum of 3 months.

6.34.2.3. Crosscheck the altimeters prior to or immediately upon coast out. Record readings of both altimeters and retain for use in contingency situations.

6.34.2.4. Continuously crosscheck the primary altimeters to ensure they agree ± 200 ft.

6.34.2.5. Aircrews should limit climb and descent rates to 1,000 feet per minute when operating in the vicinity of other aircraft to reduce potential effects on TCAS operations.

6.34.2.6. Should any of the required equipment fail after entry into RVSM airspace, immediately notify ATC and coordinate a plan of action.

6.34.2.7. Document (in the aircraft forms) malfunctions or failures of RVSM required equipment, including the failure of this equipment to meet RVSM tolerances.

6.34.3. Required Navigation Performance (RNP) Airspace. Airspace where RNP is applied is considered special qualification airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. RNP airspace is being incorporated around the world to increase air traffic capacity by decreasing separation requirements between routes. The KC-10 is approved for RNP, but may be limited to operational time restrictions based on navigation equipment.

6.34.3.1. RNP-10. Compliance includes navigation accuracy within 10NM of actual position 95% of the time. FMS-800 modified KC-10 aircraft may operate in RNP-10 without time limitations. If the capability to update the internal navigation solution with the GPS is lost, or if receiver autonomous integrity monitoring (RAIM) is lost, the aircraft is limited to 6.2 hours of operation in RNP-10 airspace after the GPS or RAIM is degraded.

6.34.3.1.1. Preflight Procedures. Review maintenance logs to ascertain status of RNP-10 equipment and particular attention should be paid to navigation antennas and the condition of the fuselage skin in the vicinity of these antennas.

6.34.3.1.2. Enroute. At least two long range navigation systems certified for RNP-10 must be operational at the oceanic entry point. Periodic crosschecks will be accomplished to identify navigation errors and prevent inadvertent deviation from ATC cleared routes. Advise ATC of the deterioration or failure of navigation equipment below navigation performance requirements and coordinate appropriate actions.

6.34.3.1.3. Document (in the aircraft forms) malfunctions or failures of RNP required equipment, including the failure of this equipment to meet RNP tolerances.

6.34.4. Basic Area Navigation (BRNAV) Airspace. Airspace where BRNAV is applied is considered special qualifications airspace. Both the operator and the specific aircraft type must be approved for operations in these areas. BRNAV navigation accuracy criteria is RNP-5. The KC-10 is approved for BRNAV operations.

6.34.4.1. Minimum equipment to operate in BRNAV airspace is one INS capable of updates or a FAA approved FMS-800 or equivalent system. Flights entering BRNAV airspace after long over-water flight must be especially aware of BRNAV tolerances and update accordingly.

6.34.4.2. Aircraft unable to maintain BRNAV tolerances must advise ATC immediately and take appropriate coordinated action.

6.34.4.3. Document (in the aircraft forms) malfunctions or failures of BRNAV required equipment, including the failure of this equipment to meet BRNAV tolerances.

6.35. Communications Instructions Reporting Vital Intelligence Sightings (CIRVIS) and Other Reports. Report all vital intelligence sightings from aircraft as indicated in FLIP planning or FLIP En route Supplement.

6.35.1. In-Flight harassment or hostile action against KC-10 aircraft. Aircraft subjected to harassment or hostile action by foreign aircraft will immediately contact the nearest US Air Force air and ground voice facility and report the encounter. Include aircraft nationality, type, insignia, or any other identifying features; note position, heading, time, speed when harassed, and the type of harassment. Request relay of the report to the nearest C2 Center. Also attempt to contact the nearest command post when in UHF and VHF range (or via L-Band SATCOM).

6.35.2. Other incidents will be reported as indicated in JCS Pub 6, Volume V and AFM 10-206, *Operational Reporting*.

6.36. In-Flight Meals. The AC and the pilot should not eat meals at the same time, and their meals should consist of different menu items.

6.37. Communications.

6.37.1. HF Communications. Confine message traffic to essential operational matters. Perform an HF radio ground check prior to takeoff when the use of HF radio may be required for ATC or C2 communications. Establish HF contact before going out of UHF and VHF range. If unable to establish HF contact with the controlling HF station and an alternate means of relay of ATC information in oceanic areas is not available, return to the nearest suitable support base.

6.37.2. General. Provide ARTCC position and weather observations when required. If unable to contact an ATC agency, attempt relay through the GLOBAL HF stations.

6.43.5. Conduct an in-flight check of the mode 4 on all missions departing the CONUS for overseas locations. Aircrews can request the mode 4 interrogation check through NORAD on UHF frequency 364.2. Request an interrogation test through the appropriate Sector Operations Center (SOCCs) at the following locations:

Table 6.4 Sector Operations Centers (SOCCs)

CONUS SECTOR	LOCATION	CALL SIGN
Northeast	Griffiss Airport	Huntress
Southeast	Tyndall AFB	Oak Grove
Southwest	March ARB	Sierra Pete
Northwest	McChord AFB	Big Foot

NOTE:

Remote receiving stations are in place for UHF coverage along entire sectors.

6.43.6. Aircraft with inoperable mode 4 will continue to their intended destinations. Repairs will be accomplished at the first destination where equipment, parts, and maintenance technicians are available. In theaters where safe passage is implemented, aircraft will follow procedures for inoperable mode 4 as directed in the applicable airspace control order or ATO.

6.43.7. Ground and in-flight checks of the mode 4, when conducted, are a mandatory maintenance debrief items. Crews will annotate successful and unsuccessful interrogation of the mode 4 on all aircraft forms (AFTO Form 781A).

6.43.8. Aircrews will carry COMSEC equipment and documents required to operate the mode 4 on missions when required per paragraph **6.43.3**. Prior to departing for any destination without COMSEC storage facilities, crews will contact their local COMSEC managers for guidance.

6.44. Unscheduled Landings. When an unscheduled landing or crew rest occurs at a base without a passenger facility, the aircraft commander should immediately advise the appropriate C2 Center and request assistance in arranging substitute airlift for passengers that are aboard. The following procedures apply when obtaining support for service members, in a group travel status, who are transported on AMC organic aircraft flying a TWCF mission which incur an unscheduled delay due to weather or maintenance problems, forcing the members to be lodged at that location until the aircraft can continue its mission.

6.44.1. If the delay is at a location where DoD facilities and AMC TWCF funds are available, payment for lodging (contract or on-base) will be made by the local accounting liaison/OPLOC citing TWCF funds. The appropriate TWCF fund cite may be obtained from the local financial analysis and/or accounting liaison office. Normally, a BPA contract or AF Form 616, **Fund Cite Authorization (FCA)** is already established at these locations to charge the routine lodging costs for transient or TDY individuals who are on TWCF funded travel orders.

6.44.2. If the delay is at a location where DoD facilities are available and AMC TWCF funds are not available, the aircraft commander will utilize AF Form 15 authority to acquire the appropriate lodging accommodations. Upon return to home station, the aircraft commander will turn in the AF Form 15 to the local accounting liaison office. A copy of the service members' group travel orders along with any other pertinent supporting data must accompany the form (e.g., lodging invoice and/or receipts).

When the AF Form 15 has been validated, it will be forwarded on to the servicing OPLOC for payment, citing the funds of the unit whose aircraft was delayed.

6.44.3. If the delay is at a location where both DoD facilities and TWCF funds are unavailable, the aircraft commander will utilize AF Form 15 authority to acquire the appropriate meals, quarters, and transportation to support the service members. Upon return to home station, the aircraft commander will turn in the AF Form 15 to the local accounting liaison office. A copy of the service members' group travel orders along with any other pertinent supporting data must accompany the form (e.g., lodging invoice and/or receipts). When the AF Form 15 has been validated, it will be forwarded on to the servicing OPLOC for payment, citing the funds of the unit whose aircraft was delayed.

NOTE:

This policy does not apply to those passengers on delayed TWCF organic aircraft who are in a per diem or space available status except for those duty passengers on TWCF funded travel orders delayed at locations where TWCF funds are available.

6.45. Maintenance. Complete the AFTO Form 781 after each flight. After landing, crew members debrief maintenance personnel on the condition of the aircraft, engines, avionics equipment, and all installed special equipment as required. At stations where there is no maintenance, and maintenance support is required, the aircraft commander will ensure that a thorough maintenance debrief is provided to the controlling C2 Center and the HQ AMC Logistics Readiness Center is notified prior to entering crew rest.

6.46. Border Clearance.

6.46.1. Normal Operations:

6.46.1.1. The unit dispatching the mission is normally responsible for the border clearance of all aircraft.

6.46.1.2. When staff support is not available, border clearance is the responsibility of the aircraft commander. Duties may be assigned to ground personnel or to the boom operator, but the aircraft commander retains ultimate responsibility. When a KC-10 aircraft is on-loaded at a base without an air traffic function, the aircraft commander is responsible for ensuring the following:

6.46.1.2.1. Crew members, troops, and passengers possess current passports and valid visas, when required.

6.46.1.2.2. Crew members, troops, and passengers have current certificates of immunization (shot record).

6.46.1.2.3. Cargo entry documents are in proper order.

6.46.1.2.4. Departing or entering the United States through an air base where border clearance can be obtained.

6.46.1.2.5. Obtaining border clearance for aircraft cargo, passengers, crew and baggage, if required, before takeoff to a foreign area or after arrival from a foreign area.

6.46.1.2.6. Spraying the aircraft (Foreign Clearance Guide and paragraph **6.47.**).

6.46.1.3. When arriving at stations located in foreign countries, comply with the following guidance:

CAUTION: If the insecticide label directs disembarkation after use, spray prior to boarding crew or passengers. Close all doors and hatches for 10 minutes after dispensing and ventilate for 15 minutes before allowing anyone on board.

6.47.1.2. Spray for 3 minutes and 20 seconds unless longer periods are specified for the country being transited.

NOTE:

Keep used aerosol cans separate from other trash so they may be disposed of safely.

6.47.2. Responsibility of Aircraft Commander in-flight. When seeing any insect or rodent infestation of the aircraft in-flight, notify the destination C2 Center, base operations, or airport manager of the situation before landing so the proper authorities can meet the aircraft.

6.47.3. Procedure at Aerial Port of Disembarkation (APOD). On arrival at an APOD, do not open cargo doors or hatches except to enplane officials required to inspect the aircraft for insect or rodent infestation or to deplane the minimum number of crew members required for block-in duties. Do not on-load or off-load cargo or passengers until the inspection is satisfactorily completed. This procedure may be altered to satisfy mission or local requirements, as arranged by the base air terminal manager or the local C2 Center.

Section 6G—Miscellaneous

6.48. Dropped Object Prevention. If an externally dropped object is discovered, the flight crew will:

6.48.1. Notify TACC or the controlling agency as soon as practical; include routing, altitude, weather, etc.

6.48.2. Notify maintenance at the first AMC station transited.

6.49. Cockpit Voice Recorder(CVR). If involved in a mishap or incident, after landing and terminating the emergency, open the CVR power circuit breaker.

6.50. Life Support and Dash 21 Equipment Documentation. Aircraft commander or designated representative will:

6.50.1. Prior to departing home station or en route stations, ensure appropriate serviceable protective clothing, life support, survival, and dash 21 equipment for the entire or remainder of the mission are aboard the aircraft.

6.50.2. Prior to departing home station and following en route crew changes, review, AF Form 4076, **Aircraft Dash 21 Equipment Inventory**, to ensure all required dash 21 equipment has been certified as installed by maintenance, the initial check has been signed by maintenance, and configuration documents match mission requirements.

6.50.3. Prior to departing home station and following en route crew changes, review, sign, and date the AFTO Form 46, **Pre-positioned Life Support Equipment**, to ensure all required protective clothing and life support and survival equipment have been certified as installed by aircrew life support and that configuration documents match mission requirements. Ensure appropriate number and type of life preservers are aboard for over-water missions carrying children and infants.

6.50.4. Missing Equipment. Aircrew members discovering equipment missing will accomplish the following:

6.50.4.1. Make an AFTO Form 781 entry for equipment found missing. Additionally, ensure equipment removed from the aircraft at an en route station is documented in the AFTO Form 781.

6.50.4.2. Annotate AF Form 4076 and AFTO Form 46 in the next vacant column indicating the quantity remaining for the item. Ensure the ICAO location designator is entered above the check number of that column. Leave AF Form 4076 and AFTO Form 46 on board the aircraft in the event of an en route crew change.

6.50.4.3. Advise the aircraft commander and determine whether the missing equipment should be recovered or replaced before mission continuation.

6.50.4.4. Assist, as required, in preparing reports of survey for missing equipment.

6.50.4.5. When possible, advise HQ AMC/DOTL and TACC (or airport management) before mission continuation.

6.50.5. Additional Equipment. If more equipment is discovered during the preflight than is annotated on the AF Form 4076 and AFTO Form 46, annotate the total quantity in the next vacant column for the item. Ensure the ICAO location designator is entered above the check number of that column.

6.51. Passenger Restrictions.

6.51.1. The cargo compartment will not be used to airlift personnel, except by specific approval of HQ AMC/DO.

6.51.2. Personnel Limitations. This chart reflects the flying hours that a number of personnel (crew and passengers) may be accommodated with only one or with both lavatories available. These figures must be considered when determining the number of personnel that may be airlifted.

Table 6.5. Personnel / Lavatory Requirements.

Total Personnel	Forward Lavatory	Z-Lavatory	Both Lavatories
80	10.3	8.5	18.8
75	11.0	9.0	20.0
70	11.8	9.7	21.5
65	12.6	10.4	23.0
60	13.7	11.3	25.0
55	15.0	12.4	27.4
50	16.5	13.6	30.1
45	18.4	15.0	33.4
40	20.6	16.9	37.5
35	22.6	19.4	42.0
30	27.5	22.6	50.1

Chapter 8

OPERATIONAL REPORTS AND FORMS

8.1. General. Applicable reports and forms are contained in this chapter. Specific reports and forms applicable only to the flight engineer are in **Chapter 12**.

8.2. AF Form 457, USAF Hazard Report. See AFI 91-202, *US Air Force Mishap Prevention Program*.

8.2.1. The Air Force hazard reporting system provides a means for Air Force personnel to alert supervisors and commanders to hazardous conditions requiring prompt corrective action.

8.2.2. Special Procedures for Hazard Reports Concerning Weather. Complete the front of an AF Form 457 and address it to the parent wing flying safety office. If a computer flight plan deficiency is involved, attach one copy of the AF Form 72, **Air Report (AIREP)**, or AF Form 4053, **INS Flight Plan and Log** and the computer flight plan to the report. Send the report so that the parent unit receives it within 5 days.

8.3. AF Form 651, Hazardous Air Traffic Report (HATR). See AFI 91-202, Attachment 3, *Hazardous Air Traffic Report (HATR) Program* (RSC HAF-SE (AR) 7602).

8.3.1. The Air Force HATR program provides a means for personnel to report all near midair collisions (NMAC) and alleged hazardous air traffic conditions. Use information in HATR reports only for mishap prevention. AFI 91-202 list reportable incidents.

8.3.2. Procedures:

8.3.2.1. Make an airborne report of the hazardous condition to the nearest air traffic control agency (e.g. center, FSS, control tower, or aeronautical radio station), and give the following information as appropriate:

8.3.2.1.1. Identification or call sign.

8.3.2.1.2. Time and place (radial/DME of NAVAID, position relative to the airfield, incident, etc.).

8.3.2.1.3. Altitude or flight level.

8.3.2.1.4. Description of the other aircraft or vehicle.

8.3.2.1.5. Include a verbal statement as soon as possible after occurrence that a written HATR report will be filed upon landing.

NOTE Air Traffic Control agencies must know if an official report is being filed.

8.3.2.2. File the HATR as soon as possible (within 24 hours) using any means of communication available. Normally, it should be filed at the Air Force base operations office at the landing airport. If this is impractical and if communications permit, notify the safety office of the Air Force base where the condition occurred, the safety office at the home base, or as prescribed by the overseas major command. In any case, provide the base or wing safety office with all available information needed to prepare AF Form 651. Turn in a completed copy of AF Form 651 to the wing safety office.

8.3.3. Individuals submitting HATRs are granted immunity from disciplinary action provided:

- 8.3.3.1. Their violation was not deliberate.
- 8.3.3.2. They committed no criminal offense.
- 8.3.3.3. No mishap occurred.
- 8.3.3.4. They properly reported the incident using procedures above.

NOTE:

HATR reports are not privileged information and may be released outside the US Air Force.

8.4. AMC Form 97, AMC In Flight Emergency and Unusual Occurrence Worksheet.

- 8.4.1. Responsibilities. Notify the appropriate authorities of any mishap involving aircraft or crew.
- 8.4.2. Reportable Mishaps. Report damage to the aircraft or injury to the crew or passengers. Also, any damage or injury to another organization's equipment or personnel resulting from the movements or actions of an AMC aircraft or crew. Reportable mishaps include:
 - 8.4.2.1. Physiological mishaps.
 - 8.4.2.2. Engine flameout, failure, or required shutdown, after engine start with intent for flight, regardless of damage. Report incidents involving two or more engines immediately. Single-engine incidents may be reported upon landing.

NOTE:

Intentional shutdowns for training, FCF, or other non-emergency purposes are excluded; however, report failure to restart, using the criteria above.

- 8.4.2.3. Loss of thrust sufficient to preclude maintaining level flight at a safe altitude.
- 8.4.2.4. Engine case penetration by shrapnel from internal engine component failure.
- 8.4.2.5. Engine case rupture or burn-through, engine bay fire, or massive fuel leakage.
- 8.4.2.6. Unselected thrust reversal.
- 8.4.2.7. Flight control malfunction (including AFCS and trim systems) resulting in an unexpected, hazardous change of flight attitude, altitude, or heading. When making the AFTO 781A, ***Maintenance Discrepancy and Work Document***, entry, include the flag words "reportable flight control malfunction."
- 8.4.2.8. Malfunction of landing gear when difficulty is experienced using emergency system or procedures.
- 8.4.2.9. Cargo door or ramp malfunction when intent for flight exists which could affect the integrity of the system.
- 8.4.2.10. In-Flight loss of all pitot-static instrument indications or all gyro-stabilized attitude or directional indications.

Chapter 12

FLIGHT ENGINEER PROCEDURES AND FORMS

12.1. General. This chapter contains FE procedures not contained in the flight manual, other portions of this AFI, or other publications.

12.2. Responsibilities. The FE is responsible to the aircraft commander for all inspections and procedures required by the applicable technical orders and regulations.

12.3. Authority to Clear Red X Symbols. FEs are not normally authorized to clear a Red X. If a situation is encountered where the aircraft is on a Red X and qualified maintenance personnel are not available to clear it, the most qualified flight engineer on the scene may obtain authorization to clear the Red X from the logistics group or operations group commander or designated representative or chief of maintenance, in accordance with T.O. 00-20-1. Other crew members are not authorized to clear a Red X.

EXCEPTION: The FE may clear Red Xs for engine covers, pitot covers, gear pins, and SPR drains when qualified maintenance personnel are not available, unless prohibited by the home station logistics group or operations group commander or designated representative or chief of maintenance.

12.4. Aircraft Servicing. FEs are normally not required to refuel or de-fuel aircraft; however, the FE is qualified and authorized to accomplish these duties when maintenance personnel are not available. This policy is designed for support of the aircraft and its mission while away from home station. Without **EXCEPTION**, the applicable refueling and de-fueling checklists will be used during all refueling and de-fueling operations. If ground support personnel are not available, the aircraft commander will designate other crew members to assist the FE. An FE may assist the normal maintenance function when critical contingency tasking dictate their use, provided this action does not impact crew duty and crew rest limits specified in **Chapter 3** of this AFI.

12.4.1. Refueling at nonsupport stations. When crew members are required to refuel due to lack of maintenance support, the FE will act as the refueling team supervisor. Two other crew members are required to assist in the refueling, one for safety duties and the other to act as fire guard. Four total will be required when the right wing single point refueling (SPR) is inoperative and refueling must be accomplished from the FE's panel.

12.5. Engine Performance Monitoring. The KC-10 engine performance monitoring program requires that specific data be recorded on each flight of the aircraft. For operational missions, when possible, attempt to accomplish two engine coupons, one after level off and one prior to descent. This data is then given to maintenance for analysis and entry into the computer to become a permanent part of the engine's history. In order to track potential engine failure, every effort must be made to record engine performance data on every sortie. Coupons must be turned in chronologically by page number. Crew chiefs are encouraged to write in aircraft flying time and oil serviced on the next form to be filled out by the FE.

12.5.1. The primary method of KC-10 engine performance monitoring is the EGT divergence method. This is the comparison of EGT from one engine to another on the same aircraft using number 2 engine as the baseline. This method is best suited for the KC-10 because it allows data from a wide range of altitudes and flight conditions to be utilized. Crew members should be aware that data may be collected with the boom and drogue deployed as long as airspeeds remain stable, no climbs or

descents are initiated, and the receiver is no closer than pre-contact. Annotate boom and drogue deployed on back of the coupon. Receiver requirements and safety are paramount.

12.5.2. Instructions for engine performance monitoring:

12.5.2.1. Auto throttles off. If possible, allow power to stabilize for 5 minutes.

12.5.2.2. Align N-1 RPMs to within 0.3 percent of each other.

12.5.2.3. Normal pneumatic bleed conditions (air conditioning packs on, engine and wing anti-ice off).

NOTE:

If normal pneumatic bleed configuration is not possible, record actual configuration on the back side of the coupon.

12.5.2.4. Stabilized cruise, light turbulence is permissible, power stabilized.

12.5.2.5. Altitude: 10,000 feet or greater. (Above FL 270 is optimum).

12.5.2.6. Mach: 0.699 or greater.

12.5.2.7. Record at least one coupon per flight (two coupons preferred). If a coupon cannot be completed, see paragraph **12.5.5.** for an alternate method. As a minimum, fill in the shaded area and the reason on the back for non-completion.

12.5.2.8. Record the following data:

12.5.2.8.1. Total Air Temperature: To the closest degree centigrade (C).

12.5.2.8.2. Indicated Air Speed: To the closest knot.

12.5.2.8.3. Mach: All 3 Numbers (within +.001).

12.5.2.8.4. Cruise Gross Weight: To the nearest 100 pounds.

12.5.2.8.5. Aircraft time at start of flight: To the nearest hour.

12.5.2.8.6. Date-of-Flight.

12.5.2.8.7. Aircraft Tail Number.

12.5.2.8.8. Fuel Temperature: General Electric and Lockheed have agreed that this is no longer tracked or required.

12.5.2.8.9. FE's name in upper right corner.

12.5.2.8.10. N1: To closest +.1 percent.

12.5.2.8.11. EGT. To the closest degree.

12.5.2.8.12. N2: To closest +.1 percent.

12.5.2.8.13. Fuel flow: To the nearest 10 pounds per hour.

12.5.2.8.14. Vibration: To the nearest .01 units.

12.5.2.8.15. Oil added: Entered by crew chief prior to flight.

12.5.2.8.16. Oil pressure: To nearest pound per square inch (PSI).

12.5.2.9. If an indicator becomes erratic or inoperative, record the best estimate of data.

12.5.2.10. Compare EGT data with the engine baseline chart on the FE table, or in AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**.

12.5.3. EGT is the primary indication of the CF6 engine operating condition. Since EGT will never shift downward (unless caused by an instrument error), any upward shift of more than +15 degrees C must be entered in the aircraft AF Form 781A, **Maintenance Discrepancy and Work Document**.

For example, if the EGT comparison page in the front of the AF Form 781A indicates engine #1: +13 degrees C, engine #2: baseline, and engine #3: +6 degrees C, then the maximum EGT for the #1 engine is baseline plus 28 degrees C, and the maximum EGT for the #3 engine is baseline plus 21 degrees C. Readings above these maximum values require a AF Form 781A entry. If an upward shift of more than +15 degrees C is identified, the condition will be immediately reported to home station for guidance.

12.5.4. EGT divergence baseline letters should be maintained in each aircraft. The card is updated every 60 days by maintenance based on the engine monitoring data received.

NOTE:

The data recording procedures listed above must be followed to assure accurate monitoring of engine health and performance. Even slight errors in the flight data entered on the engine performance monitoring coupon can result in relatively large errors in the program output. The flight crew is a vital and essential part of the program.

12.5.5. Alternate Method for Engine Performance Monitoring. This method should only be used in cases where the parameters for the primary method can not be met. Crew members should be aware that data may be collected with the boom or drogue deployed as long as airspeed remains stable, no climbs or descent are initiated, and the receiver is no closer than pre contact. Annotate boom and drogue deployed on back of coupon. Discontinue coupon reading any time safety could be compromised. As a goal, this method should not be used more than 15 percent of the time. The following applies:

12.5.5.1. May be accomplished at any altitude and airspeed/Mach.

12.5.5.2. Auto throttles must be off. Allow power to stabilize for one to three minutes.

12.5.5.3. Align N1 to within 0.3 percent of each other.

12.5.5.4. Normal pneumatic bleed conditions (air conditioning packs on, engine and wing anti-ice off).

12.5.5.5. Record EGT and N1 speed.

12.5.5.6. Fill in "AFSN" block and all shaded areas.

12.5.5.7. Provide a short explanation why the alternate method was required on the reverse side of the coupon.

NOTE:

If normal pneumatic bleed configuration is not possible, record actual configuration on the back side of the coupon.

12.6. Aircraft Structural Integrity Program. The FE will complete AFTO Forms 18, **Structural Assessment Data Sheet**, on each flight according to T.O. 1C-10(K)A-101. The new form will contain WARP and UARRSI tracking data.

12.7. Not used.

12.8. Performance Data Computations. T.O. 1C-10(K)A-1-1 will be used for all performance computations. TOLD computations will be placed on the AF Form 4089, **KC-10 TOLD Card Worksheet**. All performance data will be computed by the flight engineer and checked by the pilot. In lieu of the pilot checking the data, the performance data may also be checked by another qualified flight engineer.

12.9. General Navigation Duties.

12.9.1. General. The FE performs navigation duties using the FMS. FMS operations may include waypoint loading, updating navigation information for the various modes of FMS operation, extraction of coordinates from maps for loading into navigation equipment (e.g. revised AR tracks), recording of latitude and longitudinal coordinates during AR emergencies, and use of computer flight plans to maintain a fuel "how goes it" log when required.

12.9.2. Mission Planning. The FE assists the pilots in extracting data from maps and charts, plotting headings or TACAN and VOR radials, determining wind factors, and mission timing. This may require using basic navigation tools (dividers, plotters, and navigation computers), calculators, and microcomputers with associated software.

12.9.3. Preflight. Flight engineers accomplish the aircraft preflight according to T.O. 1C-10(K)A-1. Time permitting, the FE should load the flight plan waypoints into the FMS. This allows additional time for data verification and use of the FMS remote ranging function to cross-check inputs. Loading waypoints allows cross-check by the pilots and enhances mission departure flexibility should last minute mission changes occur.

12.9.4. In-Flight. Use the FMS to check flight progress and fuel status at pre-selected points along the route of flight. The FE will take an active role in maintaining awareness of aircraft location and position along the flight path. This should include assisting the PNF loading and verifying new and updated waypoints. The FMS will also be used to determine time, distance, and fuel requirements for all in-flight diversions. The #3 FMS may be programmed independently to monitor progress of the mission in relation to required AR start, end AR, and abort points during receiver deploy and re-deployment missions.

12.9.5. Post Flight. If any FMS system error is greater than 3 NMs per hour or residual ground speed is greater than 15 knots, an AFTO Form 781A entry is required.

12.10. Mission Planning.

12.10.1. Mission planning. AF Form 4091, **Mission Data** is used to record pertinent data throughout the mission planning, preflight, in flight, and post flight phases. Most blocks are self-explanatory, and only those sections required for the mission need to be completed. Block 34, Time and Fuel Analysis, will be completed prior to takeoff. Units are encouraged to publish additional guidance in their local **Chapter 10** of this AFI. See **Attachment 2** for guidance on completing AF Form 4091, block 34, Time and Fuel Analysis.

whether or not an actual ramp fuel is planned, and how much holding fuel is planned. Normal default holding fuel is 45 minutes. Planner should use 2 hours for remote/island destination (45 minutes holding at 10000 feet plus 1:15 holding at FL 200 in lieu of an alternate). It is the crew's responsibility to review each CFP and determine if the planned values chosen by the flight planner are sufficient for the mission. The following are additional guidelines:

12.10.4.2.1. If the CFP includes alternate fuel, but you are not required to file an alternate, do not include this fuel in your calculations.

12.10.4.2.2. The CFP does not include decompression fuel.

12.10.4.2.3. The CFP total endurance block includes all AR onloads and offloads.

12.10.5. Verification of automated mission plans. The crew must verify CFP fuel calculations using the KC-10 performance manual (T.O. 1C-10(K)A-1-1) and the following fuel computation verification procedure:

12.10.5.1. Using Figures 10-6 through 10-11 in the performance manual (T.O. 1C-10(K)A-1-1), enter with "CFP" total distance to obtain enroute time and fuel required.

NOTE:

AR activities and flying at altitudes lower than Figures 10-6 through 10-11 will increase fuel required.

12.10.5.2. Add 7000 pounds (4000 start engines, taxi, takeoff, and acceleration (SETTOAC), 3000 approach and landing).

12.10.5.3. If an alternate is required, enter time and fuel to alternate chart (Chapter 10) in the performance manual with distance to planned alternate and estimated landing gross weight (nominal 260,000 pounds without cargo, 320,000 pounds with cargo) to obtain fuel burn-off to alternate.

12.10.5.4. If the destination is remote or island, 1 + 15 holding fuel may be used in lieu of alternate fuel. Use the three-engine holding chart from T.O. 1C-10(K)A-1-1, Section 6, and a 25-degree bank angle to compute holding fuel. Use planned destination gross weight and FL 200.

12.10.5.5. Add scheduled offload fuel; subtract onload scheduled from the total.

12.10.5.6. Add fuel required for transition (18,000 pounds per hour) to the total. If transition is at the end of the flying period, reduce this amount by alternate fuel (if required) and approach and landing fuel.

12.10.5.7. Add holding fuel (12,000 pounds minimum) and enroute reserve fuel (if required) to the total.

12.10.5.8. Add decompression fuel (if required).

12.10.5.9. The total of the above steps represents the minimum mission fuel required. The aircraft fuel load may be increased to allow for unplanned contingencies, but should not normally be increased more than 10,000 pounds (identified extra). Amounts (unidentified extra) in excess of 10,000 pounds over flight plan fuel load should be tracked by unit scheduling for input into the unit fuel conservation program or de-fueled if possible.

12.10.6. In-Flight Fuel Management:

12.10.6.1. AF Form 4090, **KC-10 Flight Plan and Fuel Log** or the computer flight plan is a fuel management tool. This form should be completed for all AR missions and any flight departing the local area for duration in excess of 4 hours and when no computer flight plan is used or available.

12.10.6.2. Fuel consumption will be monitored by comparing actual to predicted fuel remaining. At a minimum, consumption comparisons will be accomplished:

12.10.6.2.1. As soon as practical after initial level off; record fuel total, compare to predicted total.

12.10.6.2.2. Prior to and after each AR.

12.10.6.2.3. During over-water cruise at intervals not to exceed 1.5 hours.

12.10.6.2.4. Any time aircraft performance is critical or marginal.

12.10.6.3. The fuel monitoring portion of the form may be discontinued at the discretion of the aircraft commander when the following conditions have been met:

12.10.6.3.1. All refuelings have been completed.

12.10.6.3.2. The equal time point has been crossed (over-water missions).

12.10.6.3.3. The fuel systems and quantity indicators are functioning normally.

12.10.6.3.4. There is obvious extra fuel and the + FUEL trend is favorable.

12.10.7. Flight Plan Changes and Diversions. When mission requirements dictate a change to the planned mission, the fuel must be recalculated to ensure safe completion of the flight. The FMS can be used to quickly modify and update the fuel log. The pilot or FE will normally insert the new waypoint coordinates for the flight plan changes. The FMS may then be used to find the new leg distances by using the remote range function. This distance must be converted to "air distance" by applying the wind factor from the FMS. When the new leg air distance is known, calculate the new leg burn-off. When the burn-off for each leg is known, update the fuel log using the "REV FUEL" block. It is recommended that the "REQ O/H DEST" fuel be entered in the "REV FUEL" block at the destination, then work the plan backwards, applying the new leg burn-offs and any AR on-loads or off-loads. The fuel log is then used in the normal manner by comparing the actual fuel to the REV FUEL and logging the + FUEL for the new waypoint. Do not apply the "extra" fuel to the new + FUEL as the new calculations are based on the "minimum" requirements.

12.10.8. Weight and Balance. The FE is responsible for completion of DD Form 365-4, **Weight and Balance Clearance Form F-Transport/Tactical**, in the absence of a qualified boom operator. He or she assists the boom operator by positioning fuel to satisfy ballast requirements for cargo loading operations. The FE has sole responsibility for aircraft weight and balance after DD Form 365-4 is completed and the aircraft is ready for flight.

12.11. In-Flight Troubleshooting. FEs may do minor troubleshooting in-flight. However, due to interrelated systems, flight crews will not, nor will they allow maintenance personnel to perform in-flight maintenance to include indiscriminately pulling circuit breakers or swapping components.

12.12. Not Used.

12.13. Auxiliary Power Unit (APU) Usage. FEs should not start the APU in-flight merely for convenience. It should only be used for an abnormal or emergency condition requiring its use in-flight.

12.14. Slip Stick. Slip stick will not be used for performance data computations or to verify performance data.

12.15. Center of Gravity (CG) Computations. CG will be computed and tracked using the zero fuel weight (ZFW) and ZFW CG provided by the boom operator using AF Form 4087, **KC-10A CG Graph** and AF Form 4088, **KC-10A Weight and Balance Fuel Vectors**. The flight engineer will carry these forms on all missions.

12.16. Fixed Flap Takeoffs. A fixed flap takeoff (defined as 15- or 22-degree detent) may be executed when the following have first been accomplished.

12.16.1. Compute an optimum flap takeoff setting for the given conditions.

12.16.2. If the 15- or 22-degree flap line for the actual gross weight (GW) falls below the runway available limiting weight (RALW) and climb gradient limiting weight (CGLW) lines (sheet 3 tree chart of T.O. 1C-10[K]A-1-1) and the actual GW is less than maximum takeoff gross weight (MTOGW), the crew has the option of executing a fixed flap takeoff. The same fixed flap setting will be used for the remainder of all performance computations.

12.16.3. The fixed flap option may be executed for initial or full-stop taxi back TOLD on local flights only. At fields other than home base, optimum procedures will be used.

12.17. Runway Slope Calculations. When using non-DoD/NOAA airfield diagrams and approach plates to determine runway information for takeoff and landing data calculations, the aircrew must calculate runway slope since non-DoD/NOAA charts do not do this for you. To calculate runway slope you must extract the departure end elevation and the approach end elevation from the airfield diagram and use the following formula:

$$12.17.1. \text{Slope in Percent} = \frac{(\text{Departure End Elevation} - \text{Approach End Elevation})}{\text{Runway Length}} \times 100$$

Chapter 13

BOOM OPERATOR PROCEDURES

13.1. General. The primary duty of the boom operator is to conduct AR operations. Specific AR instructions and procedures are in **Chapter 17** of this AFI. Other duties include load planning, coordinating loading and unloading operations, supervising on-loading and off-loading of passengers and cargo, and providing in-flight assistance to passengers.

13.2. Responsibilities for Aircraft Loading.

13.2.1. AMC Stations.

13.2.1.1. Air freight personnel are responsible for selecting cargo and mail for airlift, promptly completing documentation, palletizing cargo, load planning, computing load distribution, and movement of cargo to and from the aircraft to meet scheduled departure. They will advise the boom operator of destination, size, weight, and type of cargo (classified, hazardous, etc.) before starting load operation to permit proper positioning. They will also coordinate traffic activities that may affect loading and off-loading and assign sufficient air freight loading personnel for cargo handling. They are responsible for safe positioning of material handling equipment and cargo when outside the aircraft cargo door. Under supervision of the boom operator, air freight personnel prepare the aircraft for loading (or stow loading equipment if the aircraft is not to be reloaded), physically load the aircraft, tie down cargo and equipment, release tie-down, and physically off-load cargo.

13.2.1.2. The boom operator is responsible for aircraft preflight, preparation of DD Form 365-4, **Weight and Balance Clearance Form F-Transport/Tactical**, certifying load plans; operating aircraft loading equipment; supervising and directing loading, off-loading, and tie down; and coordinating with loading crew supervisor for checking the cargo against manifests. The requirement exists that the boom operator may be tasked to configure some components of the cargo loading system for cargo loading and unloading. When using the powered roller system, ensure no personnel are standing on a powered roller or in the line of travel of a moving pallet. Should cargo, aircraft equipment, or aircraft structure be damaged during loading or off-loading, or should loading personnel be injured, the boom operator will notify the aircraft commander, the command post, and the terminal operations officer. The boom operator will brief the aircraft commander on any hazardous cargo prior to engine start.

13.2.1.3. The Boom Operator retains the authority to adjust load plans for common sense purposes and those reasons pertaining to basic cargo principles. Departure timing must be considered when changing load plans. Otherwise, loads planned by qualified load planners will be accepted by the aircraft boom operator and loaded aboard the aircraft as planned, unless the load or any portion of it will compromise flight safety (including zero fuel weight desired CG) or does not comply with aircraft T.O.s, Air Force publications, or AMC publications. If cargo is refused or rearranged for these reasons, all applicable information, to include a copy of the load plan, will be sent to HQ AMC/DOV, attached to an AMC Form 54, through standardization channels.

13.2.2. At locations without AMC air terminal or traffic personnel, the shipper assumes responsibilities in paragraph **13.2.1.1.** and provides sufficient qualified personnel and handling

equipment for loading or off-loading. Boom operator responsibilities and authority are the same as described in paragraphs 13.2.1.2. and 13.2.1.3.

13.2.3. During JA/ATT, SAAM, contingency, and US Air Force mobility missions, the boom operator can accept DD Form 2133, **Joint Airlift Inspection Record**, as a valid pre-inspection of equipment being offered for air shipment. This form, validated by two joint inspector signatures, may be used in lieu of the applicable portions of the Technical Order (TO) 1C-5A-9C1-1. The DD Form 2133 will not be used to document preparation of hazardous materials. This will be accomplished using the Shipper's Declaration for Dangerous Goods.

13.3. Emergency Exits and Safety Aisles. There must be a reasonable degree of access to the rear of the aircraft, and passengers and troops must have ready access to emergency exits. Load aircraft in such a manner that allows for movement from the flight deck to the "ARO" compartment and access to cargo for fire fighting (except in the "all cargo" Code "D" configuration when access to only one side of the cargo is required).

NOTE:

All hand-carried items must be of a size to fit under the seat and must not obstruct the aisle way. Any items that do not fit under a seat or obstruct an aisle way will be placed in the cargo compartment and secured for flight.

13.4. Preflight Duties.

13.4.1. Cargo Missions.

13.4.1.1. Aerial port personnel establish loading times. Loading times that differ from the normal pre-departure sequence will be established before the boom operator enters crew rest. Loading time is governed by the type of load and complexity of loading procedures (bulk, palletized, etc.) not by port saturation or management of aerial port workload levels.

13.4.1.2. Proper cargo documentation must accompany each load. A consolidated statement (manifest) will be delivered to the aircraft prior to departure unless one is not available due to a lack or failure of the manifest processing equipment. In this case, a cargo listing or floppy disks containing manifest information must accompany the load.

13.4.1.3. Make every effort to exchange tie-down equipment on a one-for-one basis. If this is not possible, annotate the, AF Form 4069, **Tie down Equipment Checklist**. At non-AMC stations, 463L pallets will normally be exchanged on a one-for-one basis.

13.4.1.4. Fleet Service Checklist.

13.4.1.4.1. Aircrew members will make every attempt to ensure the AF Form 4128, **Fleet Service Checklist**, is placed on the aircraft and signed by the fleet service representative prior to departure.

13.4.1.4.2. At en route location, annotate the form with the station ICAO or 3 letter identifier over the appropriate block in section II. Example: aircraft departs Dover arrive Ramstein AB, and terminates in Dover. In section II, column 2, enter EDAR (for Ramstein) and the number of items the aircraft arrived with in the appropriate rows. Fleet service will inventory and annotate departure information in column 2, d (departure) block. Fleet service will, write sta-

tion ICAO code, date, print and sign with grade in section I. If at a station with no fleet service, annotate the appropriate block in section I indicating fleet service was not available.

13.4.1.4.3. If inventory changes, make annotations in section III. Place item nomenclature, increase/decrease amounts, station where changes occurred, date and reason why inventory changed.

13.4.1.4.4. If crewmembers notice lost or missing equipment, make every attempt to recover. If unable to recover missing fleet service items, annotate section IV and have aircraft commander sign certification.

13.4.2. Passenger Missions. Maximize seat availability on AMC aircraft. It may be necessary for crews to perform passenger service functions at stations that do not have this capability. These functions include manifesting, anti-hijacking processing, and ensuring visa/passport requirements are met. Do not hesitate to contact TACC/APCC at DSN 576-1755/1758, commercial 618-256-1755/1758, or through 1-800 AIR MOBL for any questions such as, to who may travel to specific locations or passport/visa requirements. File a copy of the passenger manifest with the most responsible on-scene agency if there is no base operations or other agency responsible for filing the manifest.

13.4.2.1. Ensure all food items are removed from the aircraft by fleet and returned to the in-flight kitchen if an extended delay occurs. Ensure that a copy of AF Form 129, **Tally In-Out**, is received from fleet to relieve the boom operator of meal accountability.

13.4.2.2. Complimentary snacks and beverages are authorized on TWCF funded missions (including AFRC flown missions) for passenger consumption only. Complimentary snacks are not authorized on JA/ATT, JCS exercises, or SAAMs. The squadron or port operations officer will ensure snacks and beverages are placed on board when departing AMC stations. When departing from other stations and no snacks or beverages are to be placed onboard, the boom operator may obtain required snacks and beverages from the local in-flight kitchen. Direct the in-flight kitchen to bill the accounting and finance office at the aircraft's home station. Record all unused snacks and beverages on AF Form 129 and return to the in-flight kitchen for turn-in credit.

13.4.2.3. A passenger service representative or crew member will assist passengers at the bottom of the steps, and the boom operator will assist in seating passengers. Ensure that only adult, English-speaking passengers are seated next to emergency exits. Do not seat mothers with infants nor children under 15 years old in seats adjacent to emergency exits. Make every effort to seat families together.

13.4.2.4. All passengers will be assigned a seat. When children under the age of two, below the weight of 40 pounds, and under the height of 40 inches are accepted as passengers, the parent or guardian must provide their own FAA approved infant car seat (ICS). This requirement does not preclude a passenger from temporarily holding an infant during the cruise portion of a flight when safety considerations are not violated. Passenger service will ensure ICS bears one or more labels as follows: (a) seats manufactured to U.S. standards between January 1, 1981, and February 25, 1985, must bear the label: "This child restraint system conforms to all applicable federal motor vehicle safety standards."; (b) Seats manufactured to U.S. standards on or after February 26, 1985, must bear two labels: (1) "This child restraint system conforms to all applicable federal motor vehicle safety standards"; and (2) "This restraint is certified for use in motor vehicles and aircraft" in red lettering. ICSs that do not qualify as above must bear either a label showing approval of a foreign government or a label showing that the seat was manufactured under the standards of The

NOTE:

Ensure sufficient customs forms are available for each passenger. They should be provided by passenger service personnel prior to departure.

13.13. Operational Forms for Boom Operators. Detailed instructions on the preparation, distribution, and use of the following forms will be found in the governing regulations.

13.13.1. AF Form 791, **Aerial Tanker In-Flight Issue Log** (AFI 23-202).

13.13.2. DD Form 1854, **US Customs Accompanied Baggage Declaration** (DoD 5030.49R).

13.13.3. CF 7507, **General Declaration (Outward/Inward)** (AFI 24-401,402,403,404, and AFR 161-71).

13.13.4. I-94, **Immigration Form, Arrival/Departure Record** (AFI 24-401,402,403,404).

13.13.5. AF Form 4069, **Tie Down Equipment Checklist**.

13.13.6. AF Form 4075, **Aircraft Load Data Worksheet**. This form can be used for each leg of a cargo mission to keep track of the load and to aid when calling in load information to the off-load base.

13.13.7. AF Form 4095, **KC-10 Load Planning Worksheet**. Instructions are in (**Attachment 2**). This form may be used to consolidate the pertinent information for the assigned cargo mission.

13.13.8. AF Form 4130, **KC-10 Restraints Computation Worksheet**. Instructions are in (**Attachment 3**). This form may be used to determine required and applied restraint.

13.14. Joint Task Force/C2 Module. The C2 module (CCM) is a 36-foot long Airstream-type trailer built in 3 sections commonly referred to as “the silver bullet.” Each section is permanently mounted on 12-foot long airdrop pallets. The trailer is not FAA certified for occupancy for takeoff and landing, therefore the trailer will not be occupied during takeoff or landing. Procedures for installing the module are in Section 5 of T.O. 1C-10(K)A-9 and **Chapter 25** of this instruction.

13.14.1. The module has the capability to carry up to 10 personnel, four in seats with seat belts. The communications suite operator will proceed to the module after take-off when cleared by the aircraft commander, establish power application, and establish interphone contact with the cockpit. Once interphone contact has been established additional personnel will be cleared to the module. The right side section of the environmental curtain and cargo barrier net should be stowed to allow easy access to the module after passing 10,000 feet and reinstalled after the module has been cleared prior to final landing. Interphone contact will be established and maintained with the module operator anytime the module is occupied.

13.14.2. In the event of a loss of cabin pressurization all occupants of the module will don the emergency oxygen provided and proceed to the forward cabin after interphone contact with the cockpit or when notified by a uniformed flight crew member.

13.14.3. The aircraft commander remains responsible for the safety of all occupants of the module, and all additional individuals associated with the mission. Emergency duties remain the responsibility of KC-10 qualified personnel.

Chapter 14

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14.1. This chapter not used for KC-10 operations.

17.4.2.3. Phase Three - Composite Exercises. Tanker aircrews should operate out of the same base as the rest of the exercise players. Also, the crews will be active participants in the pre-brief and post-mission debriefs. The purpose is to participate in composite force exercises, educate receiver and tanker aircrews, develop combat support mind set, and real-time kill removal places emphasis on integrating tanker assets into the overall picture.

17.4.3. Flight Training Limitations And Restrictions:

17.4.3.1. Limitations. Use the following table to determine which maneuvers are approved for flight and which require waivers:

Table 17.1 Flight Training Limitations

ITEM	AIRCRAFT	SIMULATOR
TAA/D	YES	YES
Quick Flow Air Refueling	YES/NOTE 1	UNABLE
Low Altitude Air Refueling	YES/NOTE 2	YES
Retrograde Tactics	YES/NOTE 3	YES
Formation Breakups	YES/NOTE 4	YES
Gun Jink	NO	YES

NOTE 1: Do not conduct Quick Flow Air Refueling until formal incorporation into refueling manuals.

NOTE 2: Tasked by the HQ AMC/DO in response to a valid support requirement.

NOTE 3: In response to a simulated fighter attack, single tanker maneuvers will be limited by air work parameters specified in applicable training instructions and this AFI. Tanker formation limit maneuvering to a normal formation turn described in **Chapter 18**. HQ AMC/DOV approves requests to conduct actual fighter intercepts/attacks against AMC tanker aircraft. Limitations from AFI 11-214 and approval waivers apply.

NOTE 4: Pending completion of tanker formation breakup, tactics development and evaluation, formation breakup procedures should be limited to procedures described in **Chapter 18**.

17.4.3.2. Restrictions/Procedures.

17.4.3.2.1. Intercept Training.

17.4.3.2.1.1. All participants conduct face-to-face coordination on specific aircraft maneuvering categories, range safety requirements, and fighter engagement parameters prior to flight if possible.

17.4.3.2.1.2. If tankers are engaged during the mission, face-to-face debriefings with the intercepting fighter pilot will be accomplished if collocated.

17.4.3.2.1.3. Accomplish training within a designated MOA. In addition to safety, the primary responsibility of the aircrew is avoiding spill-outs.

17.4.3.2.1.4. Tanker aircrews check-in with the appropriate controlling agency (AWACS/ GCI), including missions using EMCON 3. All participating aircraft monitor UHF guard (243.0 MHz).

17.4.3.2.1.5. Jamming should not be conducted on guard or any other pre-designated frequency.

17.4.3.2.1.6. Tanker aircraft should be in the unlimited maneuver category for air-to-air training, which is described as no restrictions except those stated in the flight manual and this AFI. Tanker aircrews must be aware of their own personal flying skills and limitations when determining the level of tactical maneuvers employed. The limiting factor is not always aircraft limits.

17.4.3.2.1.7. Pending completion and resolution of the tactics development and evaluation on tanker retrograde maneuvers, tanker aircraft will limit evasive maneuvering when in formation to a normal formation turn as defined in **Chapter 18**. Limit extension, separation, and retrograde maneuver accomplished by a 180-degree or less level turn, to 30 degrees of bank when in formation.

17.4.3.2.1.8. Fighters intercepting without an operative radar should make day VMC stern attacks only.

17.4.3.2.1.9. Tankers may terminate an intercept with a radio call of "knock-it-off, knock-it-off, knock-it-off" or "terminate, terminate, terminate." Use the phrase "knock-it-off" only when safety of flight is a factor. It directs all aircraft to cease maneuvering. The "terminate" call will end the local engagement and a "knock-it-off" call will end the entire exercise. Tanker crews should follow the "terminate" call with their tactical call sign and aircraft type to preclude mistaken identities from impacting the whole exercise. (i.e. Terminate, Terminate, Terminate, Exxon 41, KC-10).

17.4.3.2.1.10. Fighter aircraft maintains at least 1,000 feet vertical separation from tankers unless at least one of the following applies: (1) Separation from tanker is greater than 10 miles. (2) Tanker is closer than 10 miles but not a factor (i.e. collision potential) based on situation awareness. (3) Visual contact is established.

17.4.3.2.1.11. Minimum range during intercepts of AMC tanker aircraft is 1000 feet or the MAJCOM or service minimums of the attacking fighter, whichever is greater.

17.4.3.2.2. Low-Altitude Air Refueling (LAAR). LAAR training restrictions and limitations in **Chapter 15** apply. Units should not complete LAAR unless specifically tasked by AMC in response to a valid support requirement.

17.4.3.2.3. VFR Overhead Pattern (See **Figure 17.1**).

17.4.3.2.3.1. Limitations: Maximum bank angle-30 degrees, minimum weather VFR (maintain VMC), minimum altitude 1500 AGL for the lowest aircraft in the formation, and maximum speed 250 KIAS.

17.4.3.2.3.2. Procedures:

STEP 1: Enter initial for landing runway (3 NM minimum) at overhead pattern altitude (1500 AGL minimum) / 250 KIAS max.

STEP 2: Break at approach end of runway for lead. Subsequent aircraft break 1 mile past the break point of the previous aircraft (#2 break approximately 30 seconds after lead; #3 break approximately 1 minute after lead; #4 STEP 3: Break approximately 1 minute and 30 seconds after lead).

Chapter 18

AIRCRAFT FORMATION

Section 18A—General

18.1. Scope. This chapter covers basic formation procedures and operations. All procedures described are general and apply to all KC-135 and KC-10 aircraft.

18.1.1. Use procedures in this chapter in conjunction with applicable A/R manual.

18.1.2. These procedures are standardized with KC-135 formation operations.

18.2. Concept. The formation procedures described in this chapter are designed to enhance the efficiency, effectiveness, and safe operations of the KC-10. The broad term "formation" as used does not differentiate between specific tactics of en route formation or visual formation. Specific references to each tactic must be made to ensure complete understanding. Failure of any crew member to comply with these procedures jeopardizes the safety of aircraft and aircrews. A major factor in formation design is to provide mutual support. Once formations are formed, they should be maintained to provide this mutual support provided they do not unduly interfere with formation operations.

18.3. Safety. Formation is a potentially hazardous operation. Compliance with the specified guidelines is essential to the safe conduct of any training or combat mission. These procedures, however, cannot substitute for proper aircrew judgment during fluid formation operations.

18.4. Key Definitions.

18.4.1. Formation Flight. By FAA definition, flight with more than one aircraft that, by prior arrangement between pilots, operates as a single aircraft with regard to navigation and position reporting. Aircraft maintain station-keeping operations by visual or electronic means. Separation between aircraft within the formation is the responsibility of the flight leader and the pilots of the other aircraft in the flight. This includes transition periods when aircraft within the formation are maneuvering to attain separation from each other to effect individual control or during join-up or break-up.

18.4.1.1. A standard formation is one in which a proximity of no more than 1-mile laterally or longitudinally and 100 feet vertically from the flight leader is maintained by each wingman.

18.4.1.2. Nonstandard formations are those operating under any of the following conditions:

18.4.1.2.1. When the flight leader has requested and ARTCC has approved other than standard formation dimensions.

18.4.1.2.2. When operating within an authorized ALTRV or under the provisions of a letter of agreement.

18.4.1.2.3. When operations are conducted in airspace specifically designed for special activity.

18.4.1.3. Most formations are nonstandard and should be so indicated in the remarks section of the filed flight plan. Flight leaders are required to advise ARTCC on initial contact, and each sub-

sequent controller or controlling agency, of separation being used. Advisories are not required when operating within an ALTRV or airspace specifically designed for formation flight activity.

18.4.1.4. When flying a nonstandard formation, ARTCC must be advised of the longitudinal, lateral, or vertical separation between the flight lead and the last aircraft in the formation, so appropriate separation may be provided from non-participating aircraft.

18.4.1.5. Should separation between the flight leader and any other aircraft in the formation exceed ARTCC separation limitations or vary significantly from that reported to the ARTCC for the nonstandard formation, the aircraft outside the formation limits will no longer be considered part of the formation. The pilot will inform the formation leader of his or her position and request the ARTCC to provide individual control until the aircraft is re-established in formation.

18.4.2. Formation Departure. The departure of multiple aircraft at intervals of one minute or less which, by prior arrangement between the pilots, operate as a single aircraft with regard to navigation and position reporting. The departure portion of the flight ends at the planned level-off at cruise altitude, but may terminate earlier at a pre-planned break-up point.

18.5. Responsibilities.

18.5.1. Formation Mission Planning, Briefing, and Debriefing. Formation flights will be planned, briefed, and critiqued in accordance with this chapter. The formation leader should use the Formation Briefing Guide (**Attachment 6**) to conduct the flight crew briefings. This briefing guide may be supplemented as required.

18.5.2. Lead Responsibilities:

18.5.2.1. Proper formation is an extremely demanding task, especially for the leader who is responsible for the C2 of the formation. In formation, all pilots and crews qualified according to command procedures may be designated as formation leaders. However, the most qualified pilots and crews should be designated formation leader for operational missions.

18.5.2.2. Formation integrity and discipline begin with formation briefing. Leader must ensure all aspects of the mission are understood. When deviations from the briefed mission are necessary, they will be directed by the leader. No actions will be taken until they have been coordinated with and are understood by all formation members.

18.5.2.3. Formations comprised of non-collocated units must be thoroughly coordinated to ensure safe operations when a single formation briefing cannot be attended by all participants. Coordination of these formations will include designation of mission commander responsibilities for all phases of the formation operation.

18.5.2.4. Leaders must remember aircraft control is a basic element of good formation. Smooth aircraft control when accomplishing turns or changing altitude enhances formation integrity.

18.5.2.5. Each formation member must be aware of the position, performance, and capabilities of all flight members at all times and ensure appropriate station-keeping is maintained to provide positive aircraft separation.

18.5.2.6. Differing performance capabilities of other aircraft require additional considerations, particularly when dissimilar aircraft are mixed in a single formation.

18.5.3. Wingman Responsibilities:

emergency fuel status dictates. Receivers will not close from pre-contact until either this radio check is accomplished or visual signals direct approach to contact. This option is the desired standard for day-to-day AR operations.

18.6.3.3. Emission Option 3 (Communication Out). Radio silent formation, including rendezvous and refueling. The use of other emitters is authorized unless prohibited. Essential radio communications for safety of flight may be made.

18.6.3.4. Emission Option 4 (Emission Out). Emitters (radios, Doppler, beacons, radar, radar altimeters, IFF exterior lighting, etc.) will not be used unless specifically authorized by the ATO, rules of engagement (ROE), OPLANs, SAFE PASSAGE procedures, or other mission directives. Essential radio communications for safety of flight may be made.

18.6.3.5. Emission Options 2 through 4. When using these options, boom interphone should be used when compatible. Tanker and receiver planners will coordinate and crews will be thoroughly briefed on formation procedures, type rendezvous, rendezvous point and time, tanker and receiver altitudes, formation break-up procedures, and missed rendezvous procedures (including refueling area departure time and back-up communications procedures). If different emission options are to be used during different phases of the route, this should be included in the briefing.

18.6.4. Standard Radio Calls. **Table 18.1.** lists standardized radio calls and phraseology that may be used as appropriate on formation flights (except those conducted under options 2 through 4 above). Timely communication or required information must take precedence over the specific wording shown.

Table 18.1. Standardized Radio Calls.

Action	Example
1. All calls initiated by lead will be prefaced by flight call sign.	FUZZY 04 flight go 345.1. FUZZY 04 flight check-in.
2. All calls initiated by wingmen will be prefaced by flight call sign and position.	FUZZY 04 bogey 10 o'clock low. FUZZY 04 "two"...on secondary.
3. All acknowledgment calls by wingmen will be by position and in order.	FUZZY 04 flight lead change"two," "three."
4. Takeoff abort call.	(<i>Call sign</i>) abort, (<i>call sign</i>) abort, (<i>call sign</i>) abort.
5. Aircraft will check in as pre-briefed on inter-plane or departure. Lead will make all calls to ARTCC once formation is joined as appropriate.	"FUZZY 05—airborne" or "depar- ture control, FUZZY 05." "Departure control, FUZZY 04 flight, climbing to FL 240 block 260."
6. In formation, lead will announce heading, altitude, and air-speed changes. (depending on EMCON level).	FUZZY 04 flight—right or left turn...050, level 9000... start accel- erate or decelerate to .70 mach.

Action	Example
7. Lead may call for flight equipment checks at the appropriate time. Wingmen will acknowledge and report any abnormalities.	FUZZY 04 flight—climb check...level off check—altimeter 29.92...station check.
8. Lead may coordinate, as applicable, any change of aircraft configuration. When simultaneous action by other flight members is required, the preface will be followed by the command of execution "NOW."	FUZZY 04 flight—speed brakes...NOW.
9. If a wingman desires a power change.	FUZZY 04 lead—push it up FUZZY 04 lead—pull it back
10. Lead or position change during formation.	FUZZY 04 flight--lead or position change; two move forward to lead position. FUZZY 04—two, you have lead, Roger, I have the lead.
11. Action Cells Radar contact established Visual contact established Established in position Lost visual or radar contact Join-up overshoot Breaking out Traffic calls Lost wingman	FUZZY 04, two... Radar contact Visual contact In position Lost visual or radar Overshooting Breaking out Bogey, 9 o'clock Lost wingman
NOTE: When assured no other formation will be in range or using the same frequency or a discrete frequency has been assigned to the formation, call signs may be abbreviated for clarity and brevity, e.g. "FUZZY flight...climb check" (acknowledged) "two," "three." When checking in a flight after a frequency change, lead's transmission should be shortened, e.g. "FUZZY 04" and acknowledged by "two," "three" before lead proceeds to talk.	

18.7. Supplementary Information. AR formation tactics are located in AR manuals for each aircraft.

Section 18B—Formation

18.8. General.

18.8.1. This section describes tactics, techniques, and procedures used to join and maintain formation and applies to all aircraft. Formation will be flown as dictated by mission requirements, weather, degraded equipment, communications plans, or other tactical considerations. This section is not all encompassing and can in no way substitute for good judgment or common sense during conditions of reduced visibility or other circumstances.

18.8.2. Each unit will develop post takeoff separation procedures and departure separation plans with the local controlling agency. The training departure should closely parallel the unit's wartime departure plan (if applicable) while conforming to peacetime safety of flight restrictions. Each plan must

consider emergency aspects, aircraft performance capabilities, terrain features, penetration of weather after takeoff, and local ATC restrictions.

18.8.3. Formation leaders are responsible for the entire formation during flight. They must ensure coordination with ARTCC facilities, tanker, or receiver aircraft, and other members of the formation is accomplished prior to taking any actions. Because of following aircraft, the additional airspace, time, mission requirements, etc., the formation leader must think and plan further ahead than when flying as a single-ship aircraft. Additionally, the formation leader must be prepared to make timely decisions and direct actions should any unplanned or emergency situations arise.

18.8.4. Formation members must be thoroughly familiar with the tactics, procedures, flying and clearing techniques, and formation duties required during the mission. In-flight, they must maintain proper formation position and be prepared to assist the formation leader and to assume formation lead responsibilities if called on to do so.

18.8.5. Performance capabilities of other aircraft (KC-135E/R, F-16, B-1B, etc.) require additional considerations; particularly when dissimilar aircraft are mixed in a single formation. It is incumbent on the formation leader to understand the performance capabilities and limitations of all aircraft in the formation.

18.8.6. Hazards associated with wake turbulence and wing tip vortices in multiple heavy aircraft formation should be thoroughly understood by all formation members. Pre-mission formation briefings will include emphasis on proper lateral or vertical positioning to avoid encountering these hazards.

18.9. Launch, Departure, and Level-Off.

18.9.1. Formation Briefing. The formation leader will conduct a detailed briefing for all crew members covering the planned activities, procedures, techniques, specific EMCON procedures, and division of formation responsibilities. Boom operators may be excused from the formation briefing for cargo loading, however the aircraft commander will back brief all appropriate items. If lead changes are planned, each formation lead will brief their portion of the mission. The recommended formation briefing guide (**Attachment 6**) should be used to conduct the briefing. As a minimum, the briefing must include all applicable items listed in the guide. The formation leader must ensure all crew members thoroughly understand their responsibilities, to include assumption of formation leadership. Any questions during the briefing must be adequately resolved. If aircraft depart from separate bases and then rendezvous for formation activity, the formation leader should ensure a telephone briefing is conducted with joining tanker and receiver formation leaders; however, if this is not possible, after detailed sortie study, the coordination and briefing between the appropriate lead planning agencies or mission commanders will satisfy formation briefing requirements.

18.9.2. Taxi Procedures (Parking to Runway). Units may establish taxi plans from the normal parking area to each runway. Follow the taxi sequence established in the briefing. The formation leader should accomplish radio checks and copy ATC clearance in the chocks. All participating crews will accomplish as much of the pre-takeoff checklists as possible prior to taxi. Lead will obtain taxi and takeoff clearance.

18.9.3. Takeoff Timing Interval. Defined as the time between initiation of takeoff power for each successive aircraft in the formation. Hold-line timing should be used only as back-up. Use of takeoff power radio calls is not recommended. The takeoff interval must ensure adequate separation exists

until aircraft normal procedures allow turns for track separation. Due to turbulence caused by jet blast, following aircraft should maintain a minimum safe distance behind preceding aircraft.

18.9.3.1. Use **Table 18.2.** to determine the minimum allowable takeoff interval. The takeoff interval may be increased at the discretion of the formation lead based on several factors, including takeoff conditions and aircraft performance.

18.9.3.2. If it is not possible to determine power application of the preceding aircraft, following aircraft should base their timing on the preceding aircraft aligning with the runway and in a position to commence takeoff.

Table 18.2. Minimum Formation Interval Chart.

LEAD AIRCRAFT	FOLLOWING AIRCRAFT		
	KC-135R/T	KC-135E	KC-10A
Aircraft			
B-1B(2)	30	30	60
B-52	40	40	60
E-4	60	60	60
KC-135E	40	30	60
KC-135R/T	30	30	60
KC-10A	60	60	60

NOTE 1: Above intervals are in seconds.

NOTE 2: B-1B causes extreme turbulence or heat up to 200 feet aft of the aircraft when in maximum afterburner (300 knots and 375 degrees F). Following aircraft are especially susceptible to engine damage during rapid power changes if following too closely to a B-1B. As a guide, dissimilar aircraft should maintain at least 200-foot nose-tail clearance behind the B-1B at the beginning of takeoff roll.

18.9.4. Formation Takeoff Procedure (Hold-Line Through Takeoff): Receivers should takeoff first. Takeoff intervals or sequence may be varied as necessary depending on aircraft acceleration and performance, training requirements, weather, airfield conditions, and mission requirements. An abort call will be made any time takeoff is aborted.

18.9.4.1. Maintain proper takeoff interval and a safe speed during taxi. Use lead-in lines to align aircraft for takeoff. Adherence to timing and spacing intervals is essential to ensure safety. If less than the above timing or spacing is used, any degradation of the preceding aircraft's performance, such as loss of an engine, afterburner, etc., will result in a progressively dangerous reduction in aircraft spacing as lift off is approached.

18.9.4.2. All takeoffs are accomplished using runway centerline.

18.9.4.3. Effective crew coordination is extremely important in all takeoffs. Crew procedures must be well briefed and maximum alertness maintained. Strict radio and interphone discipline must be maintained and transmissions minimized so all aircraft are able to immediately recognize an abort call during takeoff.

be adjusted as necessary to close the formation. If ARTCC will not approve a block altitude, then request IFR separation or hard IFR altitudes for each aircraft in formation.

NOTE:

The technique of maintaining 250 feet above or below a single altitude assigned to two aircraft in formation is a direct violation of Federal Aviation Regulations. This technique is NOT acceptable and will not be practiced or used.

18.10. En Route Formation.

18.10.1. En route formation consists of multiple tanker aircraft, in trail, stacked up at 500-foot intervals with 1 NM separation (2 NMs may be used for contingency operations). The primary means of maintaining proper formation position are radar under instrument conditions and visual or radar under visual conditions. Secondary means include TACAN/DME, UHF/DME, UHF/DF, A/A TACAN, etc. In instrument conditions, the apparent movement of a return on the radar scope is the best aid in maintaining formation position. Because of allowable equipment tolerances and limitations, A/A TACAN and ARTCC radar are not recommended for use in maintaining precise formation. Weather, tactical considerations, and mission objectives dictate the degree electronic emissions are used. When visual conditions permit, minimize radio transmissions. Heading and airspeed changes need not be announced.

18.10.2. The lead aircraft should ensure the formation is aware of any change in heading, airspeed, altitude, or formation duties through precise pre-briefing and inter-plane communication. Any deviation from announced altitude, airspeed, or heading will be magnified with each succeeding aircraft. Once the formation is established, following aircraft should maintain their position with reference to the lead aircraft; however, be aware of the position of other aircraft in the formation. Following aircraft must attempt to fly the same ground track. The following techniques help maintain en route formation:

18.10.2.1. Turns. One of the most common turn techniques is when formation lead pre-briefs specific bank angles for turns. For example, lead may brief aircraft to use the same number of degrees of bank angle as the heading change up to 10-degree and use 25-degree bank angles for turns greater than 10 degrees. This also will help reduce inter-plane communications. To maintain formation position during turns, all aircraft must initiate the turn over the same geographic point. This requires each succeeding aircraft to delay the turn for a set amount of time after lead has initiated their turn. For example, at 450 KTAS, the time to travel 1 NM is approximately 8 seconds; therefore, the number two aircraft will not begin its turn until approximately 8 seconds after the lead to ensure the aircraft turns over the same geographic point.

18.10.2.2. Airspeed and Altitude. Airspeed and altitude must be closely monitored and controlled throughout formation flight. Power settings and rates of climb, descents, airspeed increases and decreases must be pre-briefed or announced on inter-plane frequency to allow formation members to maintain position. With mixed formations, one technique is to use a constant vertical velocity and constant indicated airspeed for climbs or descents. The mission must be planned to consider the airspeed requirements of the highest or heaviest aircraft, whichever is more restrictive. As a general rule, a 3-KIAS reduction in airspeed per 500-foot increase in altitude will maintain proper in trail spacing. For example, if lead is flying 270 KIAS, then #2 would fly 267 KIAS and #3

would fly 264 KIAS, and so on. Lead must ensure the target airspeed is compatible with the most restrictive aircraft in the formation.

18.10.2.3. Power and Heading Corrections. If the formation leader and formation aircraft make small power and heading corrections, formation aircraft should never be out of position more than one-quarter mile. Over correcting with power and airspeed usually results in larger deviations. A heading and airspeed tolerance for lead to shoot for is ± 2 degrees and ± 2 KIAS. If a leader deviates from these tolerances for a significant time, he or she should notify the formation and correct back immediately.

18.10.2.4. Autopilot Operations. The autopilot should be used to reduce fatigue and aid in altitude separation. Consideration should be given to placing an aircraft with an inoperative or malfunctioning autopilot in last position in the formation for missions with extended duration in formation.

18.10.3. Aircrews will monitor the position of all other aircraft and, on inter-plane, notify any aircraft excessively out of position (i.e. inside 1/4 NM or outside 3 NMs). It is possible they are having equipment or performance difficulties.

18.10.4. Visual station-keeping techniques are described in **Figure 18.1**. During operational situations with EMCON 3 or 4 implemented and marginal visibility prohibits normal formation spacing, a compressed trail formation may be required to avoid unnecessary emissions. Formations may be compressed, but should not be less than 1/2-NM spacing between aircraft. (Altitude separation may be compressed, but should not be less than 250 feet stacked up between aircraft during visual station-keeping.)

18.10.5. Visual formation is authorized for B1B bombers and fighter aircraft. During AR, if a breakaway is initiated by any airplane, aircraft flying visual formation will remain with the tanker and remain clear of the descending receiver.

18.11. Mid-Mission Join-Ups. The following generalized procedures will be used for scheduled or unscheduled mid-mission join-ups. If any discrepancies exist with aircraft specific AR manuals, the AR manual takes precedence.

18.11.1. Join-Up. A mid-mission join-up should provide a sufficient straight leg beyond the planned rendezvous point to effect join-up.

18.11.2. En route. The preferred method of join-up of aircraft is arrival over a common point with a minimum of 1000 feet of altitude separation, then departing on a common leg as described in applicable AR manuals. This should allow join-up into formation before any other activity is accomplished. For join-ups of four or more tankers, the formation leader may direct wingmen to cross the common point at 30 second intervals behind the formation leader. Once radar or visual contact is established and verified, the formation leader will clear wingmen to en route formation and effect altitude changes as required. ARTCC radar assistance may be used, if necessary, to provide initial positioning.

18.11.3. Point Parallel. A second method of effecting mid-mission join-ups is a point parallel rendezvous as described in applicable AR manuals. Aircraft utilizing this procedure will maintain a minimum of a 1000-foot altitude separation between aircraft and formations during the rendezvous. One aircraft will maintain centerline and the other must establish the offset and be the maneuvering aircraft.

18.12. Formation Position Changes (see Figure 18.2. and Figure 18.3.). Changes in formation may be required for the purpose of changing lead or moving wingmen to a more opportune position for the purpose of mission accomplishment (such as moving an aircraft with an inoperative radar to a position where following aircraft can monitor their position). **Figure 18.2.** and **Figure 18.3.** provide examples of 3-ship formation position changes. These procedures are also applicable for 2- through 6-ship formation position changes. Prior to executing any position change, the formation leader must ensure all formation members understand the procedures to be followed for intra-formation position changes. Formation position change procedures will be covered in the formation leader's briefing. ARTCC coordination is required prior to deviations from the approved flight path.

18.12.1. Formation position changes should only be accomplished in straight and level flight. Once initiated they will take priority over all other activities. Do not attempt to refuel receiver aircraft or obtain individual ARTCC clearances during formation maneuver and position changes. Crews must plan ahead to allow sufficient time and airspeed to accomplish the position change.

18.12.2. Positive separation must be monitored and maintained during formation maneuvering and position changes.

18.12.2.1. Altitude separation is the most critical element during position changes. Changes in altitude will be made only when lateral spacing is assured and coordinated on inter-plane frequency. Complete formation maneuvers and changes prior to initiation of other required mission activities. Particular care in maintaining separation must be exercised when transferring receiver aircraft from one tanker to another or when elements are joining and departing the formation.

18.12.2.2. Transferring receivers from one tanker to another during formation join-up and break-up must be coordinated with all participants and will be directed by the mission commander designated with responsibility for that phase of mission accomplishment.

18.12.2.3. Prior to initiating a formation position change, the formation leader will ensure sufficient straight and level time and airspace is available to complete the change. Radar or visual contact must be maintained throughout the position change. If radar and visual contact are lost during a position change, maintain altitude, advise formation lead contact has been lost. Ensure positive separation by any means available and do not attempt to rejoin the formation until positive radar or visual contact is established. The last aircraft in the formation with operable radar will monitor the position of other aircraft to ensure proper separation.

18.12.3. Aircraft changing positions will assume the call sign of their new intra-formation position (RED 1, RED 2, etc.) and formation leadership, if appropriate, when all aircraft are level at their new altitude and established in their new position. All aircraft will then acknowledge with their new intra-formation call sign. Aircraft will not change their individual call sign that is filed on the DD Form 175. Call sign of the flight will be the call sign of the lead aircraft or as directed by ARTCC. The new lead aircraft will squawk the assigned mode 3 or as directed by ARTCC.

18.12.4. The following procedures may be used to effect an aircraft lead or position change with other aircraft during VMC. All changes in heading, position, and altitude will be pre-briefed and coordinated on inter-plane frequency. When VMC cannot be maintained, use the procedures in **Figure 18.2.** and **Figure 18.3.**

18.12.4.1. Wingmen will maintain a minimum 1/2 mile in trail and descend or maintain 500-foot altitude separation. The aircraft to assume the lead will move laterally (normally to the right) 1/2 mile. Use 15 degrees of bank to turn 15 degrees from heading then turn back to heading using 15

degrees of bank. The wingman will accelerate and pass the leader. (Maintain 1/2 mile lateral separation.)

18.12.4.2. As the wingman passes the leader, he or she will assume lead responsibilities and climb, descend, or maintain altitude as required after positive visual separation is confirmed.

18.12.4.3. The new wingman (old lead) will obtain or maintain a 500-foot altitude separation as required, place IFF to standby, notify the new lead when approaching position in-trail, and confirm his or her altitude. At this time, the new leader will decelerate to briefed airspeed.

18.12.4.4. The wingman will assume trail position behind the leader and make a normal closure to proper position.

NOTE:

Mixed formation with KC-135. KC-10 visual station-keeping picture is similar during en route formation.

Figure 18.1. Visual Station-Keeping Techniques.

A.



A. At 2 NMs and stacked up 500 feet, the top of the fuselage appears to be one third the way up the vertical stabilizer and the engines are easy to see as small circles under the wing.

B.



B. At 1 NM, the fuselage appears to be half way up the vertical stabilizer and the engines area still visible as circles but are tangent with the trailing edge of the wing. The trailing edge of the main wing appears to meet the leading edge of the horizontal stabilizer.

C.

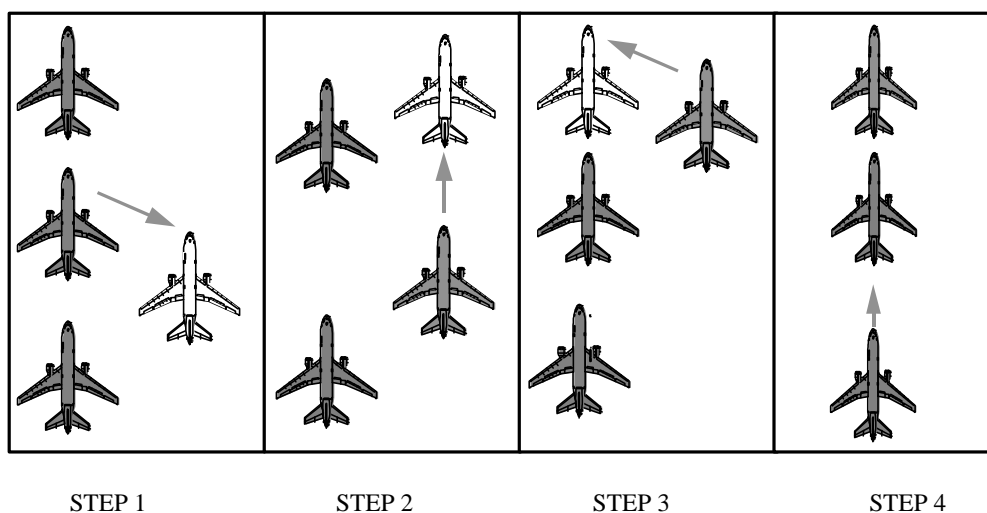


C. At 1/2 NM, the fuselage is even with the top of the vertical stabilizer and the engines appear as half circles under the trailing edge of the wing. You will be able to see a slight amount of space between the trailing edge of the main wing and the horizontal stabilizer.

D.



D. At 1/4 NM, the top of the vertical stabilizer is well back on the fuselage, just forward of the leading edge wing roots and the engines are out of view. There is clear definition between the trailing edge of the main wing and the horizontal stabilizer.

Figure 18.2. Formation Position Change—Any Aircraft Moves to Lead.**NOTE:**

The white aircraft indicates the position the maneuvering aircraft is assuming.

(STEP 1) Lead determines the aircraft or element to move forward (maneuvering aircraft). The maneuvering aircraft or element will echelon (normally right) using approximately 30 degrees of bank and turning 30 degrees from formation heading. When 30 degrees off heading, reverse the turn using approximately 30 degrees of bank and return to formation heading. This will provide an offset of approximately 2 NMs.

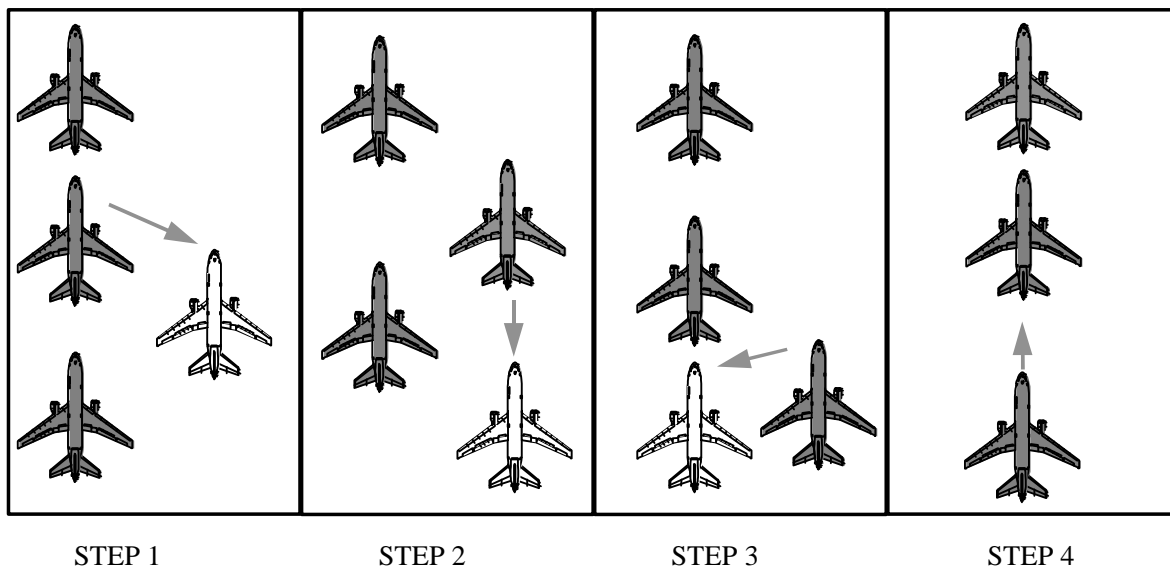
(STEP 2) After established in echelon, the maneuvering aircraft or element will accelerate forward, increasing airspeed a recommended 15 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 1 1/4 NMs forward range from the original lead. When the maneuvering aircraft or element is in the forward echelon position and positive visual or electronic contact is established, conduct the required altitude changes.

For two NM in-trail formations, the maneuvering aircraft or element will accelerate forward, increasing airspeed a recommended 30 KIAS. The maneuvering aircraft or element should then resume formation airspeed and stabilize approximately 2 1/4 NMs forward range from the original lead.

(STEP 3) The maneuvering aircraft or element will then move into lead position using no more than 15-degree heading corrections.

(STEP 4) If applicable, the formation will then establish proper aircraft spacing. The formation lead should be advised by the last aircraft after the formation is reformed. Assume new intra-formation call signs (RED 1, RED 2, etc.) and reset rotating beacon or strobe and navigation lights.

Figure 18.3. Formation Position Change—Any Aircraft Moves to Trail.



NOTE:

The white aircraft indicates the position the maneuvering aircraft is assuming.

(STEP 1) Lead determines the aircraft or element to move aft (maneuvering aircraft). The maneuvering aircraft or element will echelon (normally right) using approximately 30 degrees of bank and turning 30 degrees from the formation heading. When 30 degrees off heading, reverse the turn using approximately 30 degrees of bank and return to formation heading. This will provide an offset of approximately 2 NMs.

co-altitude with another aircraft in the formation. If, during a breakaway, the receiver aircraft loses sight of the tanker aircraft, T.O. 1-1C-1-32 requires the receiver aircraft to descend to an altitude 1000 feet below the tanker. In the event this places the receiver aircraft co-altitude with another aircraft in the formation and visual, A/A TACAN, or radar contact with the co-altitude aircraft cannot be maintained, descend to an altitude that will provide positive separation from other aircraft and decrease airspeed to ensure lateral separation.

18.18. Formation Break-Up and Recovery. Thoroughly plan and brief formation separation procedures in advance. Formations must be able to achieve spacing of 5 NMs or 3000 feet vertically before they may expect ARTCC to assume responsibility for aircraft separation. Do not initiate formation separation procedures without ARTCC approval. Several techniques may be used to accomplish this.

18.18.1. Altitude. Aircraft planning on using the same published high altitude penetration may take altitude separation prior to the holding fix and then start the penetration in succession. Lead aircraft will not transit a trailing aircraft's altitude during formation break-up unless lateral separation and positive radar or visual contact can be maintained. This helps ensure leading aircraft do not pose a wake turbulence or collision hazard to trailing aircraft.

18.18.2. Separation Routing. Aircraft routing may be designed to provide formation spacing. This may be mission planned and filed as routing following the break-up point or be provided as ATC vectors. When planning a break-up for filing purposes, sufficient spacing can be provided by planning a turn between the break-up point and the initial approach fix. The spacing provided by the turn may be effectively increased by also providing differential airspeed during the maneuver. ATC may provide the same service during vectoring, but planning the mission properly can reduce ARTCC communications and preclude delay if ARTCC radar capability is lost.

18.18.3. Cruise Differential Airspeed: Differential airspeed may be effectively used to gain lateral separation if large distances are available. If each aircraft used 10 KIAS differential airspeed (at normal en route airspeed), a 7-10 NM spacing over a 200-NM distance will result.

18.18.4. Penetration Differential Airspeed. During penetration, the lead aircraft should maintain the highest airspeed, and if possible, delay configuration. Following aircraft should maintain lower airspeeds to further help increase separation. All aircraft must allow sufficient time to complete descent and before landing checklists.

18.18.5. If formation descent and arrival is desired, detailed descent profile, airspeed reduction, and configuration procedures will be thoroughly briefed.

18.19. Mixed Formations. Although standard formation procedures normally apply during mixed formations, consideration must be given to performance differences between participating aircraft. All formation members must know the performance characteristics of their aircraft. Mission profiles should be planned to minimize altitude conflicts during departure, en route, and formation breakup.

18.19.1. Launch, Departure, and Level-Off: Formation lead must determine the optimum sequence for launch of mixed aircraft formations based on performance, weather, airfield conditions, wake turbulence, and mission requirements. Normally, the fastest accelerating or highest climb speed aircraft should lead. However, wake turbulence considerations may require the lighter aircraft to launch first. In no case will the interval be less than those outlined in **Table 18.2**. Formation leaders may increase the takeoff interval for adverse weather conditions or wake turbulence factors. If conditions

require substantial increases in takeoff interval to ensure positive formation separation, formation takeoffs should not be accomplished and FLIP separation criteria apply. An en route or point parallel rendezvous should be planned. Fighter or fighter-type aircraft should normally takeoff before tankers. For planning purposes, if operational considerations necessitate fighters takeoff after the tankers, a 5-minute interval should be used and an en route rendezvous should be planned to effect join-up. With fighters launching first, aircraft may begin takeoff roll once fighters are airborne and past the departure end of the runway, as determined by formation lead. Departure airspeed and rate of climb will be pre-coordinated at the formation briefing. If during departure an intermediate level-off is necessary, avoid climbing through the wake turbulence of preceding aircraft. Altitude separation must be carefully monitored during closure to formation position. When safety and weather conditions permit, and, if briefed by formation lead, formation members may attempt to obtain formation spacing during climbout.

18.19.2. Climbs and Descents. Due to performance differentials, caution must be exercised if climbs or descents become necessary with mixed formations. One technique is to use a constant vertical velocity and constant indicated airspeed for climbs and descents. Procedures must be thoroughly briefed prior to flight.

18.19.3. Cruise:

18.19.3.1. Tradeoffs between optimum altitudes and airspeeds for aircraft type may be required to achieve maximum overall formation efficiency. Formation leaders will determine and brief the best cruise parameters consistent with mission requirements.

18.19.3.2. Wingman consideration is paramount during altitude or airspeed changes. Formation leaders must consider the most performance limited aircraft when making these changes.

18.19.4. Buddy Departures. Buddy departures may be used by collocated tanker and fighter or bomber units. The intent of this type departure is to facilitate the join-up of receivers with their mated tankers. It is especially useful for EMCON or restricted radio operations but must be coordinated with ATC prior to launch.

18.19.4.1. VMC procedures may be used when weather (ceiling and visibility) is 3000/5 or greater. These procedures are generalized and require modification based on aircraft and airspace limitations. Receivers will normally launch first and intercept an arc to place themselves on extended (approximately 10 NMs) final to the departure runway. When the receiver calls 10 NMs final or the last receiver turns cross wind, the tanker will launch, or the tanker will launch on predetermined timing. (For each additional tanker, add the distance flown by receivers in one minute to initiate tanker launch.) This will allow 4-NM separation between receivers and the last tanker in the launch stream. Continue with a straight ahead rejoin or according to briefed departure routing. The entire formation should be rejoined within approximately 20 NMs of the departure field.

18.19.4.2. Under IMC or when weather is less than 3000/5, plan to rendezvous the formation at an orbit point along the route of flight. Tankers will normally launch first unless mission fuel load and performance considerations dictate otherwise with receivers following. Receivers should be rejoined prior to rendezvous with the tankers.

18.20. Mission Debriefing and Critique. A complete mission debriefing and critique should be conducted by the formation leader following the mission.

- 20.5.3. Maintain cabin altitude at the level requested by the GPMRC/TPMRC, tasking AE command element, or MCD.
- 20.5.4. Coordinate with the MCD to determine if any flight restrictions are necessary due to patient conditions and if passengers and cargo may be carried.
- 20.5.5. Coordinate with the MCD to insure mission required equipment is available/installed as necessary.
- 20.5.6. Advise the AECMs of intentions to start engines, taxi, itinerary changes, in-flight difficulties, etc.
- 20.5.7. Brief the MCD on additional responsibilities of the flight crew.
- 20.5.8. During Aeromedical Readiness Missions (ARM), coordinate with the Mission Clinical Coordinator (MCC) on planned simulated emergencies and training activities.
- 20.5.9. Patients or passengers may visit the flight crew compartment per **Chapter 5** of this instruction. The control of patients rests with the MCD, while control of the passengers is the responsibility of the flight crew, in conjunction with the MCD.
- 20.5.10. Transmit load messages and radio transmissions to GPMRC/TPMRC or tasking AE command element/ground personnel as requested by the MCD.
- 20.5.11. Coordinate Crash/Fire/Rescue (CFR) vehicle requirements when transiting airfields that are unfamiliar with AE requirements. CFR vehicle will stand by per AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*, and T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

20.6. Flight Crew Responsibilities.

- 20.6.1. Assist the AE crew with aircraft systems.
- 20.6.2. Provide AECMs who are not certified in the KC-10 with information identified in paragraph **20.9.1**.
- 20.6.3. Coordinate an emergency evacuation plan with the MCD.
- 20.6.4. Operate aircraft systems, i.e., doors, ramps, emergency exits, etc.
- 20.6.5. Assist the AE crew as necessary, providing such assistance does not interfere with primary duties.
- 20.6.6. Operate galley and prepare food and beverages for food service provided to patients by AECMs.
- 20.6.7. Assist with aircraft configuration for AE operations.
- 20.6.8. Complete pre-flight/emergency briefings.

20.7. Aeromedical Evacuation Crew Responsibilities.

- 20.7.1. Primarily responsible for patient activities.
- 20.7.2. Assist flight crew/maintenance with aircraft configuration for AE operations.
- 20.7.3. Install and remove medical equipment/supplies.

20.7.4. Assist the flight crew with observation and care of passengers when it doesn't interfere with primary duties.

20.7.5. If KC-10 certified, provide AECMs who are not certified in the KC-10 with information identified in **20.9.1**.

20.8. Patient Death In-Flight. When a suspected death occurs in-flight, the planned itinerary will not be interrupted if the next scheduled stop is a US military airfield. If the next stop is a civilian airfield that does not service a US military medical facility, or a foreign military airfield, that stop will be over flown (mission requirements allowing). Coordination with command and control agencies is essential. The GPMRC/TPMRC or tasking AE command element must ensure that the MTF anticipating the aircraft's arrival at the civilian/foreign military airfield is informed of the cancellation.

Section 20C—Aeromedical Evacuation Crew Complement and Management

20.9. Aeromedical Evacuation Crew Complement.

20.9.1. **Aircrew Qualification.** AECMs must be fully qualified on at least one of the following aircraft; the C-9, C-17, C-130, or C-141, and are authorized to log primary flight time while performing duties on AE missions. Prior to being utilized as a certified AECM on KC-10 aircraft, AECMs must receive training as directed in AFI 11-2AE, Volume 1. A flight crewmember is ultimately responsible for emergency egress and cabin safety.

20.9.2. **Crew Complement.** A basic AE crew consists of two FNs and three AETs. An augmented AE crew consists of one additional FN and AET. An alert crew normally consists of one FN and two AETs, and is normally not augmented. The group/squadron chief nurse can adjust the crew complement. The group/squadron chief nurse is the final authority for increasing or decreasing the number of AECMs assigned to AE missions. Physicians, nurses, medical technicians, or other personnel designated as medical attendants (i.e., Critical Care Air Transport Team (CCATT) members) to specific patients do not constitute an augmented crew and does not extend crew duty time. Basic crews will not be augmented after crew duty has started.

20.9.3. The appropriate GPMRC/TPMRC or tasking AE command element will notify the command and control agencies or flying organization operations officer of the AE crew complement for each AE mission on KC-10 aircraft.

20.10. Aeromedical Evacuation Crew Management. AECMs will be managed per **Chapter 3** of this instruction.

Section 20D—Aeromedical Evacuation Aircrew Procedures

20.11. Checklists.

20.11.1. **General.** This instruction and AFI 11-215, set policy and provide guidance for the standardization of contents and maintenance of flight crew checklists. Checklists will be maintained per AFI 11-215 and applicable MAJCOM supplement.

20.11.2. **Applicability.** This instruction applies to all AECMs assigned to AMC and AMC-gained AE units. It also applies to theater assigned AECMs performing AE duties on the KC-10 aircraft.

20.11.3. During all aircraft operations, AECMs will carry and use the guidance contained in their current abbreviated flight crew checklist.

20.11.4. Only MAJCOM/DO and SG approved inserts/briefings pertaining to crew positions will be kept in the abbreviated flight crew checklist binders.

20.11.5. Information in the AECM checklists will not be changed except by published revisions or changes.

Section 20E— Aeromedical Evacuation Airlift Operations

20.12. General.

20.12.1. Determining Factors. Consider the following factors when transporting patients on the KC-10 aircraft; patient's diagnosis, condition, equipment, oxygen requirements, in-flight time, in-flight patient care requirements, and the number of medical personnel required. Emphasis must always be on providing quality and appropriate care while minimizing potential risks during transport.

20.12.2. Patient Load Planning Factors. The GPMRC/TPMRC or tasking AE command element determines the size/composition of the patient load on AE missions. AE mission planning factors will be per applicable AFI/H 11-XXX and 41-XXX series publications.

20.12.3. Patient Preparation. A flight surgeon, if available, will determine the patient's suitability for AE on the KC-10 aircraft. Medical authorities requesting the patient's evacuation must be informed of the in-flight physical stress on the patient. If the MCD determines the patient's medical condition is beyond the capability of the AE crew or aircraft, they will contact the GPMRC/TPMRC or tasking AE command element for further guidance. The MCD, in coordination with the appropriate theater medical validating authority, may refuse to accept any patient whose medical condition is beyond their capability. The MCD will advise the aircraft commander when a patient's condition or use of medical equipment may affect aircraft operation.

20.12.4. Equipment for AE Missions. All AE equipment currently approved by HQ AMC/SGX for use in the AE system has been reviewed and tested by OC-ALC/LCM at Tinker AFB, OK and has been found acceptable for use on the KC-10. For those unique patient moves requiring equipment that has not been approved, contact GPMRC/TPMRC or tasking AE command element.

GPMRC/TPMRC or tasking AE command element will obtain approval prior to use onboard the aircraft (applies to that specific mission only). AECMs are responsible for all medical supplies and equipment.

20.12.5. Aircraft Security. See **Chapter 7** of this instruction.

20.13. En Route Diversions.

20.13.1. The MCD is the medical authority onboard all AE missions and has the responsibility to determine what is beneficial or detrimental to the patient(s). If a physician is onboard, as an attendant to a patient, they will make decisions involving that specific patient's care and may be consulted for advice as appropriate. Specific procedures are contained in applicable AFI/H 41-XXX series.

20.13.2. Should a diversion become necessary due to a change in patient's condition, the aircraft commander will make every effort to comply with the requests of the MCD. Establish communications with the responsible command and control agencies, who will relay the information to the appropriate GPMRC/TPMRC or tasking AE command element.

20.13.3. Should an en route diversion become necessary for reasons other than a change in patient's condition, the aircraft commander will coordinate with the MCD before deciding the point of landing. The welfare of the patients is a prime consideration in all such decisions; however, safety is the final determinant. The aircraft commander notifies the responsible command and control agencies of the diversion and requests the appropriate medical agencies be notified.

20.13.4. Normally, patients will be advised of changes in itinerary and reasons for the diversion.

20.13.5. If the MCD determines the diversion will be detrimental to a patient, or the aircraft commander determines the diversion to be unsafe, the command and control agencies will be advised and guidance requested.

20.13.6. ARMs are the primary means of preparing for AE airlift. These missions can be diverted to fulfill "real" versus "simulated" patient airlift requirements. All medical equipment/kits will be kept operationally ready at all times.

20.13.7. Opportune Airlift. Opportune airlift is preferred to launching a special airlift aircraft. The appropriate GPMRC/TPMRC or tasking AE command element and airlift agency should direct the move. Use of opportune airlift is considered an unscheduled AE mission, and managed/reported in the same manner as any other AE mission, to include the change of the mission number when patient(s) is/are onboard. AECMs on these missions will either be certified or under supervision while gaining certification in the affected aircraft.

20.14. Ground Operations.

20.14.1. Engines should be shut down during enplaning and deplaning of patients.

20.14.2. Enplaning and Deplaning Considerations. A Wilson or Cochran loader or a high-rise lift truck may be used to enplane or deplane litter or ambulatory patients via the cargo door or passenger doors. Ensure one AECM accompanies patients. If available, a stair truck or other stairs may be used to enplane or deplane ambulatory patients or if necessary, litter patients. If, in the opinion of the MCD it can be done safely, litter patients may be enplaned or deplaned using stairs utilizing a minimum of a four person carry.

20.15. Refueling Operations.

20.15.1. Refueling normally begins after deplaning patients are off the aircraft and prior to enplaning that station's patients. This minimizes the number of souls on board in case of an emergency. Servicing will be per AFI 32-2001 and T.O. 00-25-172.

20.15.2. Concurrent servicing may be accomplished with patients on board if movement of the patient off the aircraft could jeopardize the patient's health, provided:

20.15.2.1. The Chief Servicing Supervisor (CSS) coordinates with all personnel involved prior to beginning concurrent operations.

20.15.2.2. Prior to starting concurrent servicing, the total number of patients, passengers, and crew on board the aircraft will be given to the fire department.

20.17.2.2.1.4. In an emergency evacuation situation, the cargo barrier net and curtain may be raised or removed, and a pallet subfloor may be placed in the cargo compartment. Use procedures in paragraphs **20.18.2.2.** and **20.18.2.2.1.** to secure litters.

20.17.3. Available litter spaces and ambulatory seating will depend on the aircraft cabin's mission configuration.

20.17.4. Electrical Power. The electrical cable assembly set (ECAS) does not provide an adapter (pigtail) for use on KC-10, 110VAC/400Hz electrical outlets. Do not operate the electrical frequency converter from this aircraft. Use only battery-operated medical equipment.

20.17.5. Therapeutic Oxygen. Therapeutic oxygen is not available on the aircraft and must be brought on board for patient use. Use the portable therapeutic liquid oxygen (PTLOX) system.

20.17.6. Patient and passenger emergency oxygen is available on the aircraft. Patients and passengers will use the applicable passenger emergency oxygen system or EPOS. Litter patients should have portable oxygen available or EPOS.

20.17.7. AECMs will have portable oxygen available. AECMs will use an MA-1 portable oxygen bottle, or equivalent, which will be secured near their assigned seat.

20.17.7.1. AE units will not maintain MA-1 portable oxygen bottles. MA-1 portable oxygen bottles must be functionally located to ensure proper maintenance, servicing, and storage. Dash 21/ Alternate Mission Equipment (AME) shops ensure MA-1 portable oxygen bottles are serviceable and properly maintained, tested, and stored. Dash 21/AME personnel ensure additional MA-1 portable oxygen bottles are available for each AE crew member flying in a primary crew position on AE missions.

20.17.8. Do not secure aircraft or medical equipment adjacent to an emergency exit.

20.17.9. Life Preservers. MB-1 flotation devices should be used for litter patients. If unavailable, use the Adult/Child life preserver for litter patients.

20.17.10. Patients not normally transported on the KC-10 aircraft:

20.17.10.1. Critical prognosis requiring extensive patient care/medical equipment, i.e.; burns or multiple trauma.

20.17.10.2. Respiratory problems requiring large amounts of therapeutic oxygen, ventilator support and/or frequent suctioning.

20.17.10.3. Patients with contagious illness.

20.17.10.4. Floor loaded patients with external devices dependent on gravity, i.e.; foley catheters or chest drainage systems.

20.17.10.5. High risk neonates without special medical supervision from a neonatal team.

20.18. Passengers and Cargo.

20.18.1. The aircraft commander, with the concurrence of the MCD, will ensure maximum aircraft utilization for passengers and cargo. Passenger restrictions based upon patient considerations will be identified when seats are released. At stations with an GPMRC/TPMRC or tasking AE command ele-

ment, the AEEO/GPMRC/TPMRC or tasking AE command element will advise the appropriate command and control agencies on the number of seats available for passengers.

20.18.2. Cargo and passengers may be carried with patients unless a clear detriment to the health and well being of the patient or passengers can be demonstrated. The decision will be made by the MCD, considering the need for maximum utilization of the aircraft. Conflicts will be referred to the respective GPMRC/TPMRC or tasking AE command element for a decision.

20.18.3. Cargo will not be bumped except in unusual/abnormal cases, and only after the MCD has coordinated with the aircraft commander and notified the local GPMRC/TPMRC or tasking AE command element.

20.18.4. Do not move ambulatory patients to litters in order to provide seating for additional patients or passengers.

20.18.5. Hazardous cargo will not normally be transported aboard AE missions except in extreme circumstances.

20.19. Aircraft Rescue and Fire Fighting (ARFF).

20.19.1. Aircraft carrying patient(s) will be provided ARFF protection per T.O. 00-25-172. Stand-by ARFF vehicle is not necessary during normal operations. An ARFF vehicle can be available upon request. The flight crew will coordinate ARFF requirements.

20.19.2. At non-AMC bases, non-U.S. military bases, and civilian airfields, the controlling agency will coordinate the ARFF coverage, as necessary. The request for ARFF vehicle coverage may be denied. This will not prevent refueling operations from occurring.

20.20. AE Call Sign and Use of Priority Clearance.

20.20.1. For AE missions, use the call sign "Evac" followed by the five digit aircraft number (i.e., Evac 12345) or mission designator (as required by FLIP). Revert to standard call sign when the AE portion of the mission is completed.

20.20.2. The AE "priority clearance" will be used when carrying patients classified as "urgent" or "priority," who require urgent medical attention. AE priority will only be used for that portion of the flight requiring expedited handling. Aircraft commanders will request priority handling if AE missions are experiencing long delays during takeoff or landing phases, that will affect a patient's condition.

20.20.3. This does not allow use of AE priority status simply to avoid Air Traffic Control (ATC) delays, make block/departure times, or avoid inconveniences. ATC agencies do not question the motive when an AE priority is declared. Use this status judiciously.

20.21. Load Message.

20.21.1. At military bases, the flight crew will pass inbound load messages to the proper command and control personnel. At civilian airfields, ground control will be notified.

20.21.2. The MCD will complete an AF Form 3858, **C-130/C-141 Aeromedical Evacuation Mission Offload Message**, per procedures in applicable AFI/H 41-XXX series.

25.9.4.2. Accountability for deployed aircrew life support equipment will be in accordance with AFM 67-1, Volume 2.

25.10. Aircraft Maintenance. The maintenance concept is based on providing an organizational level maintenance capability. It provides preflight, launch, post-flight, recovery capability, and limited specialist support for line replaceable unit (LRU) removal and replacement. Deployed forces will use maintenance support at the deployed location if compatible with aircraft systems. The KC-10 deployment maintenance supervisor will supervise and control aircraft maintenance. Maintenance requirements beyond the capability of the deployed personnel will be referred to AMC TACC/LGRC for coordination with MOB unless specified in operations order.

25.10.1. Status reporting will be in accordance with AFI 21-103. Aircraft possession will not normally be transferred to an operating location.

25.10.2. Aircraft selected for deployment should be identified as early as possible. Selection should be based on present and past performance and known scheduled maintenance and depot requirements.

25.10.3. C-Check and paint (depot) schedules are planned and accomplished by the logistic support contractor. Aircraft deployed will be replaced in order to make scheduled depot input. If aircraft cannot be replaced it must be returned for depot. Operational requirements will not interrupt the depot schedule.

25.10.4. Aircraft will not deploy with an engine that requires removal for expiration of maximum operating time or reconditioning interval during deployment tasking.

25.10.5. Spare engines will not be deployed unless specified in the implementing FRAG order.

25.10.6. An operational APU is required for all deploying aircraft unless waived by HQ AMC/DOV.

25.10.7. Units will send an adequate supply of engine conditioning coupons per aircraft to cover entire deployment.

25.10.8. One complete set of technical orders for the aircraft will be deployed to support FOL operations. Technical order requirements for other than FOL operations will be determined by the MOB.

25.11. Deployed Personnel. Personnel will be deployed based on the KC-10 UTC. UTCs may be tailored to meet operational requirements.

25.11.1. For a local training mission, maintenance personnel are not normally required.

25.11.2. All deploying personnel who require access to the flight line will possess AF Form 1199, **USAF Restricted Area Badge.**

25.11.3. Deploying maintenance personnel will deploy with the required tool kits.

25.11.4. Personnel departing as part of a Tanker Task Force (TTF) must comply with AFR 28-4 prior to departure.

25.11.5. Deploying personnel must be qualified in accordance with AMCI 21-101 or appropriate MAJCOM guidance.

25.11.6. When deemed necessary by the LG commander, LSC personnel may be deployed. Deployment onboard United States Air Force aircraft is authorized.

25.12. Support Equipment. Support equipment not in the ESK or MSK will be deployed in accordance with the UTC. Requirements may be tailored to meet mission requirements. Maximum utilization of equipment already at the FOL is required.

25.13. Maintenance IAU Responsibilities. Maintenance will store, control, repair and be accountable for all IAU equipment. They will prepare, load, unload, arrange, and secure IAU equipment onboard aircraft as required by designated configuration.

25.14. Aircrew Life Support Equipment. Aircrew life support equipment management will be in accordance with this AFI and AFM 67-1, Volume 2.

25.15. Transportation. Mission support cargo and passengers for KC-10 missions not directed or controlled by AMC will be arranged by operating wing. All passenger and cargo movement will be referred to the base aerial port squadron transportation office (or airlift support squadron on non-AMC bases) for required action or support.

25.15.1. TACC staff will contact the aerial port squadron transportation function with long range (30 days when available) mission schedule configuration requirements to facilitate coordination for manpower and equipment support.

25.15.2. Base transportation squadrons or aerial port squadrons (where assigned) are responsible for installation or removal of pallet sub-floors without restriction, and storage or accountability for operational system 463L cargo pallets, nets, and tie-down devices.

25.15.2.1. Transportation and aerial port load team personnel may conduct loading and unloading of aircraft support equipment (i.e. tow bars, ESK, etc.) without supervision after coordinating with the KC-10 boom operator. The types of KC-10 support equipment that will be loaded or unloaded without supervision will be fully coordinated between transportation, the aerial port, and operations, and a resulting list will be provided. To preclude problems with aircraft tip-over as a result of exceeding station arm 1430, no cargo will be loaded aft of pallet position 8 or station 1393.

25.15.3. Passenger processing (which includes booking, check-in, anti-theft and anti-hijacking procedures, baggage weighing, tagging and loading, and manifesting and boarding passengers) will be in accordance with AMCI 24-101, *Volume 14 Military Airlift—Passenger Services*, and this instruction. Mobility deployments will be in accordance with base mobility plan.

25.15.4. The base air freight section is responsible for receipt, manifesting of cargo, and compliance with the procedures in Paragraphs **25.14.5** and **25.14.6**.

25.15.5. TACC staff will manage cargo loaders assigned to AMC in support of KC-10 operations. The TACC will determine need for and coordinate movement of equipment and personnel to assemble or disassemble and operate cargo loaders in support of KC-10 operations at other than home station. Units will contact the TACC if operations dictate the need for deployed wide-body loader support. The KC-10 on-board loader will be operated and assembled by Aerial Port personnel.

25.15.6. AF Form 4128, **Fleet Service Checklist**, will be utilized by the transportation function to control support equipment placed onboard aircraft. Add any items peculiar to the station or flight in the blank space provided (i.e. KC-10 pallet couplers, chains, straps, devices, and passenger comfort items.) AF Form 4049 will be completed in accordance with AMCI 24-101, *Volume 10 Military Airlift—Fleet Service*.

25.17. KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirements. Use the following table to determine aircraft equipment, technical data, forms, and miscellaneous requirements for “Daily” (local) and “Deployed” operations.

Table 25.1. KC-10 Aircraft Equipment, Technical Data, Forms, and Miscellaneous Requirements.

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
1.	AFTO Form 781, AFORMS Aircrew/Mission Flight Data Document	1	1	
2.	ECMP coupon book	1	1	
3.	Appropriate debriefing form	as req.	as req.	
4.	AFTO Form 349, Maintenance Data Collection Record	20	20	
5.	AF Form 1297, Temporary Issue Receipt	as req.	6	
6.	Spare AFTO 781 series forms	as req.	as req.	
7.	AF Form 315, United States Air Force Avfuels Invoice	as req.	1	
8.	DD Form 1896, Jet Fuel Identia-plate	1	1	
9.	Manual of Weight and Balance (1-1B-40/1C-10(K)A-5)	1	1	
10.	T.O. 1C-10(K)A-06, Work Unit Code Manual	1	1	
11.	T.O. 1C-10(K)A-2-7CL-1, Jacking Checklist	1	1	
12.	T.O. 1C-10(K)A-2-9CL-1, Towing Checklist	1	1	
13.	T.O. 1C-10(K)A-2-12, Servicing	1	1	
14.	T.O. 1C-10(K)A-2-12-1, Potable Water Service	1	1	
15.	T.O. 1C-10(K)A-2-12-2, Hydraulic Service	1	1	
16.	T.O. 1C-10(K)A-2-12-3, Waste Water Service	1	1	
17.	T.O. 1C-10(K)A-2-12-4, Constant Speed Drive Service	1	1	
18.	T.O. 1C-10(K)A-2-12-5, Engine Oil Service	1	1	
19.	T.O. 1C-10(K)A-2-12CL-1, Refuel/De-fuel Checklist	1	1	
20.	T.O. 1C-10(K)A-2-12CL-2, Oxygen Service	1	1	
21.	T.O. 1C-10(K)A-2-25-1, External Electrical Power	1	1	
22.	T.O. 1C-10(K)A-2-25, Equipment/Furnishings	1	1	
23.	T.O. 1C-10(K)A-2-25CL-1, IAU Installation/Removal	1	1	
24.	T.O. 1C-10(K)A-2-32, Landing Gear	1	1	
25.	T.O. 1C-10(K)A-2-28CL-1, Boom/Drogue Ground Operations	1	1	
26.	T.O. 1C-10(K)A-2-36-1, External Pneumatic Power	1	1	
27.	T.O. 1C-10(K)A-2-49CL-1, Airborne Auxiliary Power Unit	1	1	
28.	T.O. 1C-10(K)A-2-71CL-1, Power Plant Ground Operations	1	1	
29.	T.O. 1C-10(K)A-6WC-1, Pre-flt, Basic Post-flt and Thru-flt Inspection Work cards	1	1	

Line	Quantity/ Number Nomenclature	Daily	Deploy	Notes
30.	T.O. 1C-10(K)A-6WC-2, "A" Check Inspection Work cards	1	1	
31.	T.O. 1C-10(K)A-6WC-6, Special Inspection Work cards	1	1	
32.	T.O. 1C-10(K)A-1-2, Minimum Equipment List	1	1	
33.	T.O. 1C-10(K)A-1-3, Fault Reporting	1	1	
34.	Cover assembly, pitot tube	3	3	
35.	Lock assembly, main landing gear, AXG7012-501	2	2	
36.	Lock assembly, centerline landing gear, PN53719, "L"	1	1	
37.	Lock assembly, nose landing gear, 700-501	1	1	
38.	Lock assembly, main landing gear door open, DZZ7044-1	2	2	
39.	Lock assembly, main landing gear door closed, AXG7012-501	2	2	
40.	Ground wires (50 ft.), 4010-00-268-2681	2	2	
41.	Sill Protector, Cargo door, A227475-503	1	1	
42.	Chocks (30 inches long),	4	4	
43.	Cover assembly, engine inlet, TS-1079W	3	3	
44.	Cover assembly, engine exhaust,	3	3	
45.	Insecticide, 6840-01-140-7930	4	4	
46.	Bags, plastic (garbage), 8105-00-655-8286	20	20	
47.	Step ladder (6 foot), 5440-P183-6Y14	as req.	as req.	
48.	Ladder, Little Giant, 5410-01-092-1894	as req.	as req.	
49.	Oil, Mobile Jet II (case), 9150-00-913-9717	1	1	
50.	Skydrol (case), 9150-00-485-0075	1	1	
51.	Hydraulic Fluid, (MIL-H-5606) (quart), 9150-00-252-6383	6	6	
52.	Oil, general purpose (can), 9150-00-485-0075	1	1	
53.	Hydraulic spray (can), 9150-00-159-4472	1	1	
54.	Spray lacquer (can), 8010-00-067-5436	1	1	
55.	Bucket, 7240-00-943-4472	1	1	
56.	Scotch Brite Pad	1	1	
57.	Wire brush	1	1	
58.	Mop	1	1	
59.	Squeegee heads, 7920-00-577-4747	2	2	
60.	Squeegee handles, 7920-00-141-5452	2	2	
61.	Broom, push, 7920-00-292-2367	1	1	
62.	Broom, swish, 7920-00-178-8315	1	1	
63.	Dust pan, 7920-00-224-8308	1	1	
64.	Snow shovel	1	1	

NOTE 4: Kit will be stowed on one 463L pallet.

25.18. KC-10 Cargo Door Safety Net. The following materials are required to construct a KC-10 Cargo Door Safety Net.

Table 25.2. KC-10 Cargo Door Safety Net.

Nomenclature	National Stock Number	Part Number	Quantity
Webbing, textile	8305-00-811-1617 (Red)(Primary) 8305-00-753-6528 (Yellow)(Alternate) MIL-W-4088	N/A N/A	27 yards
1 3/4-inch slide, assembly tension	1670-00-502-2818	67B46276	3 ea.
1 3/4-inch hook, assembly eye	1670-00-925-0683	67B46270	6 ea.
Fitting, cargo	1670-00-463-7478	A 7000	2 ea.

25.18.1. Instructions for constructing the KC-10 Cargo Door Safety Net.

STEP 1: Overall dimensions of the cargo net are 156 inches (13 feet) long by 44 inches (3 feet-8 inches) tall, measured from outside edge to outside edge.

STEP 2: Top and third horizontal webbing's are measured 156 inches (13 feet) long. The second and bottom horizontal webbing are 110 inches (9 feet and 2 inches) long.

STEP 3: All vertical webbing's are measured 44 inches (3 feet-8 inches) long. All webbing's are spaced 14 inches apart horizontally, using middle-to-middle measurements.

STEP 4: The first vertical webbing is sewn to the first and third horizontal webbing's at 11 inches plus 3 inches from the left-hand side. All other vertical webbing's are spaced 18 inches apart, using middle-to-middle measurements.

STEP 5: Hook assembly and slide assembly tension are attached with a 3-inch overlap (detail D), requiring 9 inches of webbing.

STEP 6: Adjustment webbing is placed through the tension slide assembly, folded, and sewn to act as a stop.

STEP 7: All sewing is done using size "FF" nylon thread and secured with a box X pattern. All webbing ends must be finished to prevent fraying.

STEP 8: Aircraft serial number may be inked in the upper forward net area 1 1/2-inch stencil.

25.19. Crew Chief On Board Parts Kit. Use the following table to determine the requirements of the Crew Chief On Board Parts Kit.

Table 25.3. Crew Chief On Board Parts Kit.

NOMENCLATURE	PART NUMBER	QUANTITY
Radio Altimeter Indicator	2067635-0703	1
AT/SC Computer	2593342-975	1
Beacon Light Assembly	31-4814-3	1
Taxi Light	4557	1
Beacon Light Power Supply	60-3281-3	1
Fly-Away jack	6010-50F	1
#1 UHF R/T	707650-801	1
ADI	787-6892-003	1
EGT Indicator	8DJ175LXP2	1
N1 Indicator	8DJ176WAP2	1
N2 Indicator	8DJ176WAR2	1
Fuel Flow Indicator	9-118-15	1
Voice Recorder	93A100-10	1
FE Clock	A15802	1
Eng. Fuel Vapor Vent Line	AE1000100H0072	1
Boom Signal Coil	AQL7094-501	1
Emergency Light Battery	EMBS139-2	1
IAU Cannon Plug Pins	LRM20W5	1
Landing Light	Q4559X	1
Windshield Wiper Blade	XW23143-1	1
Boom Control Unit	4035981-906	1
MLG Tire	5000757-8	2
NLG Tire	5000919-1	1
Standby Attitude Indicator	705-7V9	1

25.20. Forms Prescribed. The following Air Force forms are prescribed by this instruction: AF Forms 4053, 4069, 4075, 4076, 4087, 4088, 4089, 4090, 4091, 4095, and 4130.

MARVIN R. ESMOND, Lt General, USAF
DCS, Air and Space Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoD 4515.13R, *Air Transportation Management*

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 11-2, *Aircraft Rules and Procedures*

AFPD 10-21, *Air Mobility Lead Command Roles and Responsibilities*

AFI 10-403, *Deployment Planning*

AFI 11-202V1, *Aircrew Training*

AFI 11-202V2, *Aircrew Standardization/Evaluation Program*

AFI 11-202V3, *General Flight Rules*

AFI 11-221, *Air Refueling Management (KC-10 and KC-135)*

AFI 11-222, *Tanker Activity Report*

AFI 11-215, *Flight Manual Procedures*

AFI 11-207, *Flight Delivery of Fighter Aircraft*

AFI 11-209, *Air Force Participation in Aerial Events*

AFI 11-218, *Aircraft Operations and Movement on the Ground*

AFI 11-401, *Flight Management*

AFI 11-2KC-10V1, *KC-10 Aircrew Training*

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*

AFI 11-299, *Nuclear Airlift Operations*

AFI 13-207, *Preventing and Resisting Piracy [Hijacking]*

AFI 13-401, *Managing the Information Security Program*

AFI 21-101, *Maintenance Operations and Management Policy*

AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*

AFI 31-101, Volume 1, *Air Force Physical Security Program*

AFI 31-401, *Information Security Program Management*

AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*

AFI 48-104, *Medical and Agricultural Foreign and Domestic Quarantine Regulations for Vessels, Aircraft, and Other Transports of the Armed Forces (Joint)*

AFI 48-123, *Medical Examinations and Standards*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 37-124, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*

AFMAN 10-206, *Operational Reporting*

AFMAN 11-117, *Instrument Procedures*

AFM 67-1V1, *Supply/Fuels Wartime Planning*

AFOSH Standard 127-100, *Aircraft Flight Line - Ground Operations and Activities*

ATP-56A, *NATO Air to Air Refueling*

Abbreviations and Acronyms.

ACDE—Aircrew Chemical Operations and Procedures

ACF—Acceptance Check Flight

AGE—Aircraft Ground Equipment

AOR—Area of Responsibility

APU—Auxiliary Power Unit

AR—Air Refueling

ARCT—Air Refueling Control Time

ASRR—Airfield Suitability and Restriction Report

ATC—Air Traffic Control

BRNAV—Basic Area Navigation Airspace

C2—Command and Control

CDT—Crew Duty Time

CG—Center of Gravity

CW—Chemical Warfare

CCA—Contamination Control Area

CECR—Crew Enhancement Crew Rest

CFP—Computer Flight Plan

COE—Certification of Equivalency

CSS—Chief Servicing Supervisor

CVR—Cockpit Voice Recorder

DCS—Defense Courier Service

DH—Decision Height

EAL—Entry Access List

EAR—End Air Refueling

Aeromedical Evacuation Coordination Center (AECC)—Medical element established to operate in conjunction with C2 Centers. AECC, through Global or Theater Patient Movement Requirement Centers, coordinates overall medical requirements with airlift capabilities and monitors patient movement.

Aeromedical Evacuation Crew Member (AECM)—Qualified Flight Nurse (FN) and Aeromedical Evacuation Technician (AET) performing AE crew duties.

Aeromedical Evacuation Operations Officer (AEEO)—Medical Service Corps (MSC) officer or medical administrative specialist or technician (AFSC 4A0X1) assigned to the AE system to perform duties outlined in applicable Air Force policy directives, instructions, 41-series handbooks, and this AFI.

Aeromedical Readiness Missions (ARMs)—Training missions using simulated patients to prepare for the wartime/contingency movement of patients.

Air Force Mission Support System (AFMSS)—Provides the Air Force with common interoperable automated flight mission planning hardware and software. Consists of a ground and portable (laptop) system. Interfaces with theater, MAJCOM, and joint data bases from fixed or deployed locations worldwide. Automates previously manually accomplished tasks. Passes Air Tasking order through C2IPS or CTAPS. Threats are provided via the Combat Intel System. AFMSS is multimedia capable with modem provided on ground and portable systems. The portable has a 1553B interface bus for uploading data to the aircraft. AFMSS displays and prints full color charts, NITF imagery, perspective views, mission rehearsals, 3-D fly through, flight planning forms and logs, and Digital Aeronautical Flight Information File information. Uses industry standardized data bases and complies with open-system architecture and multilevel security requirements. Built with Commercial Off-The-Shelf (COTS) hardware, and implements nonproprietary software.

Air Force Component Commander (AFCC)—In a unified, sub-unified, or joint task force command, the Air Force commander charged with the overall conduct of Air Force air operations.

Air Refueling Control Point (ARCP)—The planned geographic point over which the receiver(s) arrive in the observation/pre-contact position with respect to the assigned tanker.

Air Refueling Exit Point (AR EXIT PT)—The designated geographic point at which the refueling track terminates. In a refueling anchor it is a designated point where tanker and receiver may depart the anchor area after refueling is complete.

Air Refueling Initial Point (ARIP)—A point located upstream from the ARCP at which the receiver aircraft initiates a rendezvous with the tanker.

Aircrew Chemical Defense Ensemble (ACDE)—Individually fitted aircrew unique chemical protective equipment for the sole purpose of protecting aircrew while flying into and out of a chemically contaminated environment.

Aircrew Eye/Respiratory Protective System (AERPS)—New generation individually sized aircrew chemical defense protective equipment system designed to protect aircrew from toxic chemical exposure to the head, neck, face, eyes, and respiratory tract.

Airlift—Aircraft is considered to be performing airlift when manifested passengers or cargo are carried.

Air Mobility Control Center (AMCC)—Provides global coordination of tanker and airlift for AMC and operationally reports to the AMC TACC. Functions as the AMC agency that manages and directs ground support activities and controls aircraft and aircrews operating AMC strategic missions through overseas locations.

Air Mobility Element (AME)—An extension of the AMC TACC deployed to a theater when requested by the geographic combatant commander. It coordinates strategic airlift operations with the theater airlift

management system and collocates with the air operations center whenever possible.

Air Mobility Operations Control Center (AMOCC)—Operations center which controls movement of theater assigned air mobility assets.

Air Reserve Component (ARC)—Refers to Air National Guard and AFRC forces, both Associate and Unit Equipped.

Air Route Traffic Control Center (ARTCC)—The principal facility exercising enroute control of aircraft operating under instrument flight rules within its area of jurisdiction. Approximately 26 such centers cover the United States and its possessions. Each has a communications capability to adjacent centers.

Air Traffic Control (ATC)—A service provided by an appropriate authority to promote the safe, orderly and expeditious use of the air transportation system and to maximize airspace utility.

Airfield Suitability and Restrictions Report (ASRR)—A quarterly publication, published by HQ AMC/DOVS, to establish airfield suitability and restrictions for AMC and AMC-gained C-5, C-9, KC-10, C-17, C-21, C-130, KC-135, and C-141 aircraft operations. Others use as information only, or as directed by the assigned MAJCOM.

Allowable Cabin Load (ACL)—The maximum payload which can be carried on an individual sortie.

AMC History System (AHS)—Database that compiles and stores tanker activity input by line units.

Augmented Crew—Basic aircrew supplemented by additional qualified aircrew members to permit in-flight rest periods.

Automatic Link Establishment (ALE)—Automated process of setting up a communications link between two operating stations. Process involves periodic scanning of frequency spectrum and over-the-air "handshaking" to select and maintain highest quality and most reliable radio channels. Primarily used in the HF band.

Aviation Into-Plane Reimbursement (AIR) Card—A credit card that can be used to purchase aviation fuels, related fuel supplies and ground services at commercial airports where no DoD or Canadian Into-Plane contract exists.

Bird Aircraft Strike Hazard (BASH)—An Air Force program designed to reduce the risk of bird strikes.

Bird Watch Condition Low—Normal bird activity [as a guide, fewer than 5 large birds (waterfowl, raptors, gulls, etc.) or fewer than 15 small birds (terns, swallows, etc.)] on and above the airfield with a low probability of hazard. Keep in mind a single bird in a critical location may elevate the Bird Watch Condition (BWC) to moderate or severe.

Bird Watch Condition Moderate—Increased bird population (approximately 5 to 15 large birds or 15 to 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may elevate the BWC to moderate or severe.

Bird Watch Condition Severe—High bird population (as a guide, more than 15 large birds or 30 small birds) in locations that represent an increased potential for strike. Keep in mind a single bird in a critical location may cause a severe BWC.

Block Time—Time determined by the scheduling agency responsible for mission accomplishment for the aircraft to arrive at (block in) or depart from (block out) the parking spot.

Due Regard—Operational situations that do not lend themselves to International Civil Aviation Organization (ICAO) flight procedures, such as military contingencies, classified missions, politically sensitive missions, or training activities. Flight under "Due Regard" obligates the military aircraft commander to be his or her own air traffic control (ATC) agency and to separate his or her aircraft from all other air traffic. (See FLIP General Planning, section 7.)

Equal Time Point (ETP)—Point along a route at which an aircraft may either proceed to destination or first suitable airport or return to departure base or last suitable airport in the same amount of time based on all engines operating.

Estimated Time In Commission—Estimated time required to complete required maintenance.

Execution—Command-level approval for initiation of a mission or portion thereof after due consideration of all pertinent factors. Execution authority is restricted to designated command authority.

Experienced Copilot (ECP)—Copilot with 500 total flying hours (not including "other" time) of which a minimum of 200 hours are in the primary assigned aircraft (PAA). Individual must also be designated an "experienced copilot" by the squadron commander. Designation indicates the squadron commander certifies the individual is progressing normally toward upgrade to aircraft commander.

Familiar Field—An airport in the local flying area at which unit assigned aircraft routinely perform transition training. Each operations group commander will designate familiar fields within their local flying area.

Scheduled Return Time (SRT)—Scheduling tool used by air mobility units to predict when crews will return to home station. SRT for active duty, ANG, and AFRC is defined as SRT plus 24 hours.

Force Rendezvous Point (FRP)—A checkpoint at which formations of aircraft join and become part of the main force. Also called group rendezvous point.

Fuel Reserve—Amount of usable fuel that must be carried beyond that required to complete the flight as planned.

Global Decision Support System (GDSS)—AMC's primary execution command and control system. GDSS is used to manage the execution of AMC airlift and tanker missions.

Global Patient Movement Requirements Center (GPMRC)—A joint activity reporting directly to the Commander in Chief, USTRANSCOM, the DoD single manager for the regulation of movement of uniformed services patients. The GPMRC authorizes transfers to medical treatment facilities of the Military Departments of the Department of Veterans Affairs and coordinates intertheater and CONUS patient movement requirements with the appropriate transportation component commands of USTRANSCOM.

Ground Time—Interval between engine shut down (or arrival in the blocks if engine shutdown is not scheduled) and next takeoff time.

Hazardous Cargo or Materials (HAZMAT)—Articles or substances that are capable of posing significant risk to health, safety, or property when transported by air and classified as explosive (class 1), compressed gas (class 2), flammable liquid (class 3), flammable solid (class 4), oxidizer and organic peroxide (class 5), poison and infectious substances (class 6), radioactive material (class 7), corrosive material (class 8), or miscellaneous dangerous goods (class 9). Classes may be subdivided into divisions to further identify hazard, i.e., 1.1, 2.3, 6.1, etc.

Instructor Supervision—Supervision by an instructor of like specialty. For critical phases of flight, the instructor must occupy one of the seats or stations, with immediate access to the controls.

In-Place Time (IPT)—Time when an aircraft and crew are at an operating base and prepared to load for the mission.

Interfly—The exchange and/or substitution of aircrews and aircraft between Mobility Air Forces (MAF) including crew members and/or aircraft from AETC, ACC, PACAF, and AMC-gained ANG and AFRC forces.

International Maritime Satellite (INMARSAT)—United Nations-sponsored organization with controlling authority over a commercial satellite constellation. The constellation provides near global voice/data communications coverage for land-based, maritime and aeronautical radio operations. Users of the system are required to register with the organization, abide by the charter, and pay "by the minute" usage fees.

Joint Airborne/Air Transportability Training (JA/ATT)—Continuation and proficiency combat airlift training conducted in support of DoD agencies. Includes aircraft load training and service school support. AMC headquarters publishes JA/ATT tasking in AMC OPOD 17-76, annex C, appendix 1.

Joint Task Force/C2 Module (CCM)—36-foot long Airstream C2 Module (trailer) built in 3 sections.

L-Band SATCOM—600 BPS satellite communications (SATCOM) system contracted through the International Maritime Satellite Organization (INMARSAT), used primarily for command and control. The system consists of a satellite transceiver, a laptop computer, and a printer.

Loading Time—A specific time, established jointly by the airlift and airborne commanders concerned, when aircraft and loads are available and loading is to begin.

Local Training Mission—A mission scheduled to originate and terminate at home station (or an off-station training mission), generated for training or evaluation, and executed at the local level.

Maintenance Status:—

A-1; No maintenance required.

A-2 (Plus Noun); Minor maintenance required, but not serious enough to cause delay. Add nouns that identify the affected units or systems, i.e. hydraulic, ultra high frequency (UHF) radio, radar, engine, fuel control, generator, boom or drogue, etc. Attempt to describe the nature of the system malfunction to the extent that appropriate maintenance personnel will be available to meet the aircraft. When possible, identify system as mission essential (ME) or mission contributing (MC).

A-3 (Plus Noun); Major maintenance. Delay is anticipated. Affected units or systems are to be identified as in A-2 status above.

A-4; Aircraft or system has suspected or known biological, chemical, or radiological contamination.

Medical Crew Director (MCD)—A qualified FN responsible for supervising patient care and AECMs assigned to AE missions. On missions where an FN is not onboard, the senior AET will function as MCD.

Mission Contributing—Any discrepancies that is not currently designated Mission Essential (ME).